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U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.
GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, MO., JANUARY, 1928. No. 1.

GENERAL SUMMARY.

The opening month of 1928 was mild and dry in all of Missouri. As compared with past years it was the warmest January since 1923, and only five other Januarys in 60 years have been drier. Excluding the first four days, which were decidedly wintry, the month was mainly pleasant from the side of personal comfort, and favorable for the usual winter outdoor pursuits. Minus departures of from 10° to 34° were general the first four days, but from the 6th to the 19th large plus departures were general and persistent, while the remainder of the month varied only slightly from normal temperatures, being equally divided between minus and plus departures.

There were general rains on one or more days from the 17th to the 19th, this being the first precipitation since the opening of the month. Snow covered the ground several inches the first two or three days over most of the State, and some snow fell over central sections on the 24th and 30th, but soon melted.

Notwithstanding winter wheat had very little snow cover, only scattered spots were apparently killed, the general condition being above the average. There was some farm activity, such as clearing fields and repairing fences, and small amount of plowing. Fruit buds remained dormant. The prevailing dry conditions favorably affected automobile traffic, the main highways being clear of snow and ice. The earth roads, however, were mostly in almost impassable condition.

TEMPERATURE.

The monthly mean temperature for the State, as shown by the records of 64 stations, was 33.3°, or 2.9° above the normal. It was the warmest January since 1923. Plus departures were noticeable in all divisions, except the southeastern lowlands where they approximated the normal. The first four days of the month were typical winter, when minimum temperatures ranged from a few degrees above zero to several degrees below zero generally, the lowest reached being -18° at Louisiana, Pike County. There was no more severe cold after the first week. The warmest period of the month was from the 10th to the 14th, when day temperatures ranged from 67° in the north to 77° in the south. There were only 23 days with minimum temperature of 32° or lower, and 3 or 4 with zero or lower.

PRECIPITATION.

The average precipitation for the State, based upon the records of 95 stations, was 0.87 inch, or about 1 16 inches less than the 56 years' average. As compared with past years only five Januarys have been drier. The lack of precipitation was marked in all sections but especially in the northwestern plateau where few stations received more than one-tenth of an inch. Eight stations, three in the northwest, reported inappreciable totals for the month. The heaviest monthly total was 2.26 inches, at Doniphan, Ripley County. And the greatest 24-hour amount was 1.25 inches, at St. Louis on the 24th.

The snowfall was scanty. The heaviest amounts, 1 to 2 inches, occurred from the Missouri River counties south to the Ozarks. In the northern part of the State there was, as a rule, a trace or less.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—7th, 14th, 15th, 16th, 18th, 20th, 23d, and 30th.

Halos, lunar.—2d, 7th 9th, 10th, and 29th.

Halos, solar.—1st, 2d, 5th, 7th, 17th, 28th, 29th, and 30th.
Sleet or Glaze.—Light at Edgerton, Kansas City, Columbia, Warsaw, Aurora, and Seymour on 24th. Springfield 30th.
Thunderstorms.—19th, and 24th.

SPECIAL STORM NOTES.

Jan. 24.—High winds prevailed generally on this date. In the southeastern section of the State they reached gale force about noon. In Butler County a few roofs of dwellings were damaged, trees broken, billboards and signs blown away; damage about \$150. One person was injured. At Anniston, Mississippi County, there was some evidence of rotary winds, one dwelling was blown over and the top of a newly built school-house was carried away. Damage put at about \$2,500. Four persons were injured but not seriously. Strong winds were felt over adjacent counties but no damage occurred.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine.		Wind.				
		7 a. m.	7 p. m.	Total hours.	Percentage of possible.	Total move- ment, miles.	Average hour- ly velocity.	Max. velocity.		
								Miles per hour.	Direction.	Date.
Columbia.....	30.17	77	66	183	62	5,795	7.8	28	nw.	24
Hannibal.....	30.16	75	..	..	..	6,743	9.1	29	w	19
Kansas City.....	30.18	78	60	222	73	7,709	10.4	36	w.	18
St. Joseph.....	30.16	78	59	229	76	5,693	7.7	33	nw.	19
St. Louis.....	30.17	75	65	165	54	9,234	12.4	37	w	19
Springfield.....	30.16	79	58	183	59	6,963	9.4	30	nw.	24
Cairo, Ill.....	30.21	78	63	..	..	6,522	8.8	39	sw.	24
Keokuk, Iowa.....	30.16	75	63	180	60	5,931	8.0	36	nw.	19

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR JANUARY.

Year.	Temperature.				Precipitation.				Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelted.	With .01 inch or more.	Clear.	Partly cloudy.	Cloudy.
1888.....	21.5	-8.7	74	-32	1.91	-0.08	....	....	6	....	....	....
1889.....	31.8	+1.6	69	-2	2.36	+0.37	....	....	6	....	....	....
1890.....	33.8	+3.6	81	-19	4.25	+2.26	....	....	9	....	....	....
1891.....	34.1	+3.9	87	-1	1.52	-0.47	....	....	4	....	....	....
1892.....	24.0	-6.2	67	-25	1.80	-0.19	....	....	4	....	....	....
1893.....	22.5	-7.7	66	-14	0.45	-1.54	0.90	2.4	3	14	8	9
1894.....	31.4	+1.2	77	-35	2.21	-0.22	2.96	2.7	3	9	11	11
1895.....	24.7	-5.5	78	-22	1.49	-0.50	2.20	9.4	5	14	8	9
1896.....	32.9	+2.7	71	-9	1.17	-0.82	2.44	3.1	4	10	14	14
1897.....	28.4	-1.8	72	-16	4.90	+2.91	6.95	4.0	8	12	7	12
1898.....	34.3	+4.1	75	-10	3.98	+1.99	3.35	8.4	9	11	8	12
1899.....	30.2	0.0	70	-21	1.55	-0.44	2.40	4.0	6	12	8	11
1900.....	34.5	+4.3	77	-9	1.22	-0.77	2.30	0.2	4	14	7	10
1901.....	35.0	+4.8	72	-11	1.30	-0.69	2.95	0.8	4	17	7	7
1902.....	30.1	-0.1	72	-17	1.23	-0.76	3.37	6.9	5	16	7	8
1903.....	31.4	+1.2	73	-11	1.36	-0.63	1.71	5.0	6	13	6	12
1904.....	27.0	-3.2	66	-23	2.85	+0.86	4.74	7.4	8	14	6	11
1905.....	22.3	-7.9	72	-19	1.79	-0.20	2.52	6.8	8	14	6	11
1906.....	35.6	+5.4	76	-8	3.64	+1.65	3.00	9.2	6	14	5	12
1907.....	34.3	+4.1	79	-5	5.10	+3.11	4.42	2.8	12	7	6	18
1908.....	34.4	+4.2	68	-10	1.51	-0.48	2.13	3.6	5	19	5	7
1909.....	33.7	+3.5	83	-20	2.17	+0.18	2.10	6.5	7	6	7	12
1910.....	32.3	+2.1	78	-24	1.83	-0.16	3.98	3.5	5	13	6	12
1911.....	34.6	+4.4	78	-19	1.20	-0.70	3.03	0.7	5	8	7	16
1912.....	20.0	-11.3	70	-36	1.06	-1.20	2.56	6.5	4	14	7	10
1913.....	33.1	+1.8	74	-12	3.67	+1.30	5.30	2.6	8	13	6	12
1914.....	38.1	+6.9	78	-1	1.42	-0.92	2.00	1.0	4	12	7	12
1915.....	29.1	-2.7	76	-24	2.92	+0.59	3.10	5.4	8	12	5	14
1916.....	31.6	+0.7	72	-24	7.36	+5.16	4.65	3.1	12	9	4	18
1917.....	32.9	+2.5	76	-10	1.52	-0.64	2.50	2.3	5	15	7	9
1918.....	16.4	-14.0	67	-24	1.68	-0.71	3.20	16.6	7	12	7	12
1919.....	34.0	+3.6	70	-23	0.40	-1.88	3.05	1.4	2	20	5	6
1920.....	28.6	-1.4	72	-5	1.57	-0.65	4.15	5.7	5	15	5	11
1921.....	37.1	+7.2	74	-1	1.88	-0.38	1.45	5.4	6	10	7	12
1922.....	29.5	-0.6	66	-6	1.21	-1.05	2.95	3.9	5	14	5	14
1923.....	39.2	+8.5	75	3	2.72	+1.81	3.52	0.6	6	12	7	12
1924.....	24.9	-5.5	68	-25	1.54	-0.49	1.78	5.7	7	14	5	12
1925.....	29.7	-0.7	65	-15	1.00	-1.03	2.10	4.7	4	15	7	9
1926.....	32.7	+2.3	70	-20	1.90	-0.13	2.51	4.2	6	11	7	13
1927.....	30.8	+0.4	73	-24	3.05	+1.02	4.40	3.6	6	13	6	12
1928.....	33.3	+2.9	77	-18	0.87	-1.16	1.25	0.5	3	16	7	8

Climatological Data for January, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.			Number of days.				Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.			Partly cloudy.	Cloudy.
Northeast Plain.																				
Brunswick	Chariton	652	48	29.4	+ 2.6	66	14	-10	2	38	0.24	-1.39	0.10	0.5	4	19	0	12	nw	O. K. Buecke
Clifton Hill	Randolph	731	28	30.2	+ 1.5	66	14	-13	1	31	0.27	-1.33	0.22	0.2	3	14	17	6	sw	Dr. A. J. Bradsher
Columbia	Boone	784	37	32.8	+ 3.6	71	14	-9	1	27	0.94	-1.29	0.72	1.9	4	15	8	8	sw	U. S. Weather Bureau
Downing	Schuyler	876	6	30.2	.....	66	14	-8	2	31	0.03	-1.70	0.03	T.	1	17	6	8	sw	James Taylor
Payette	Howard	661	47	30.6	+ 3.4	69	14	-12	1	37	0.67	-1.32	0.39	0.8	3	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	30.3	+ 0.6	73	15	-12	3	38	0.87	-1.48	0.53	1.5	4	10	14	7	.....	Chamber of Commerce
Gorin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	0.27	-1.28	0.26	0.1	2	14	5	12	nw	J. W. Pulliam
Hannibal	Marion	534	35	30.9	+ 3.8	70	14	-14	2	29	0.41	-1.79	0.20	0.6	5	15	7	9	nw	U. S. Weather Bureau
Jefferson City	Cole	557	39	32.4	+ 2.6	73	14	-10	1	36	0.94	-1.28	0.70	0.2	6	17	4	10	n	Miss Emma Swift
Kirksville	Adair	969	38	29.8	+ 4.9	63	14	-9	1	31	T.	-1.53	T.	0.0	0	16	4	11	sw	Prof. J. S. Stokes
Louisiana	Pike	469	33	33.6	+ 5.7	70	14	-18	2	35	0.30	-1.72	0.12	1.3	4	20	5	6	w	J. T. Farrell
Macou	Macou	875	28	29.0	+ 0.5	67	14	-12	1	41	0.25	-1.35	0.25	0.0	1	17	9	5	w	W. C. Brown
Mexico	Andrain	800	38	30.4	+ 2.1	70	14	-10	2	35	1.09	-0.96	0.60	1.3	4	20	3	8	sw	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	0.48	.....	0.30	0.0	3	18	8	5	w	J. S. Conway
St. Charles	St. Charles	456	39	33.5	+ 2.4	72	14	-8	1	33	1.22	-1.05	0.91	1.5	4	14	6	11	nw	L. C. Sneger
St. Louis (1)	St. Louis City	568	53	34.7	+ 3.5	71	14	-5	1	28	1.91	-0.43	1.25	1.1	1	15	7	9	sw	U. S. Weather Bureau
St. Louis (2)	.....do.....	578	15	33.8	+ 3.6	72	14	-6	1	26	1.60	-1.47	1.04	0.8	6	17	5	9	w	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	0.26	-1.46	0.25	0.0	1	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	30.2	+ 2.4	65	14	-12	2	29	0.30	-1.89	0.25	T.	2	15	11	5	sw	Frank Hall
Unionville	Putnam	1,062	34	29.2	+ 5.7	63	14	-8	1	32	0.08	-1.76	0.06	T.	2	18	5	8	sw	Geo. W. Davis
Warrenton	Warren	816	45	33.7	+ 4.7	75	14	-11	1	36	1.43	-0.95	0.96	2.5	4	14	11	6	sw	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	29.5	+ 4.6	64	14	-10	2	27	0.41	-1.15	0.33	0.8	2	12	10	9	sw	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	31.3	+ 3.2	75	14	-18	2	41	0.63	-1.36	1.25	0.7	3	16	7	8	sw	.....
Southeast Lowlands.																				
Campbell	Dunklin	314	2	36.4	.....	71	14	-5	3	41	1.73	.....	0.85	0.0	5	17	4	10	n	Jeff. King
Carnthersville	Pemiscot	265	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sam Smith
Doniphan	Ripley	344	23	36.6	+ 0.4	70	11	-4	3	35	2.26	-1.95	0.60	2.0	6	16	7	8	sw	W. W. Martin
Jackson	Cape Girardeau	428	36	34.8	+ 0.8	69	19	-6	1	39	1.32	-2.40	0.45	T.	5	9	8	14	n	John G. Putz
Marble Hill	Bollinger	470	32	35.2	+ 0.4	71	11	-5	1	44	1.95	-1.58	0.65	0.0	4	14	8	9	n	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	2.25	-1.98	.....	0.2	8	19	3	6	sw	John A. Spence
Poplar Bluff	Butler	329	23	36.4	+ 0.2	77	11	-6	3	50	1.93	-2.04	0.68	T.	5	19	3	9	w	J. H. Wolpert
Sikeston	Scott	318	22	34.6	+ 3.0	70	17	-3	2	39	2.19	-2.04	0.75	T.	6	17	2	12	sw	R. B. Drummond
Cairo, Ill.	Alexander, Ill.	358	52	36.6	+ 1.7	70	16	-2	1	31	1.65	-2.11	0.65	T.	8	11	10	10	s	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	35.8	0.0	77	11	-6	1	50	1.91	-2.01	0.85	0.1	6	15	6	10	sw	.....
Dark Plateau.																				
Arcadia	Iron	926	46	32.9	+ 0.8	71	12	-8	1	46	0.86	-2.36	0.46	T.	2	22	0	9	nw	Arcadia College
Aurora	Lawrence	1,370	37	38.4	+ 4.9	73	13	-7	1	36	0.60	-1.80	0.40	0.2	2	18	5	8	sw	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	36.2	+ 1.8	72	14	-6	1	39	1.90	-1.16	0.85	0.0	4	20	3	8	sw	V. H. Kirkendall
Bolivar	Polk	1,071	33	36.6	+ 2.7	72	14	-8	1	29	0.67	-1.22	0.23	0.1	5	19	5	7	w	Southwest Baptist College
Dean H.	McDonald	1,000	28	38.7	+ 2.5	75	14	-7	3	46	1.63	-0.61	1.06	T.	4	26	1	4	s	H. E. Dean
Eldon	Miller	934	31	33.6 ^b	+ 2.2	74	14	-8	1	34	0.77	-0.77	0.27	2.3	5	6 ^b	15 ^b	8 ^b	sw	E. H. Shepherd
Farmington	St. Francois	918	16	34.8	+ 2.0	72	16	-8	1	39	1.97	-0.38	0.94	T.	4	11	14	6	ne	Robert Forsyth
Goodland	Iron	1,000	33	34.8	+ 2.2	72	12	-10	3	50	0.82	-2.05	0.35	0.0	4	17	4	10	n	E. M. Adams
Greenville	Wayne	381	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	1.08	.....	0.60	1.0	3	19	5	7	w	A. W. Madison
Koshkonong	Oregon	958	26	38.8 ^a	+ 2.3	72	11	-11	1	37	1.55	-1.99	0.70	T.	5	16 ^a	3 ^a	11 ^a	sw	R. M. Hitt
Lebanon	Laclede	1,265	39	33.3	+ 0.3	73	14	-11	1	42	1.49	-0.96	0.40	1.5	6	15	9	7	w	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	36.8	+ 3.5	72	14	-7	1	30	0.88	-0.78	0.45	0.5	3	20	4	7	nw	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	35.3	+ 2.1	72	14	-9	1	43	1.49	-1.38	0.58	T.	5	20	4	7	sw	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	36.2	+ 1.1	70	14	-10	3	34	0.70	-1.80	0.45	1.1	4	20	5	6	sw	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	35.6	+ 4.3	70	14	-10	1	30	1.43	-1.02	0.60	2.0	5	21	4	6	w	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	34.0	+ 1.1	70	14	-10	3	41	1.62	-1.23	0.67	0.5	5	15	8	8	sw	A. C. Leech
Seligman	Barry	1,542	25	44.0 ¹	+ 9.3	74	11	-10	1	30	1.03	-1.21	0.86	0.0	3	13 ¹	7 ¹	2 ¹	sw	Floyd E. Fawver
Seymour (near)	Webster	1,612	21	36.2	+ 1.9	71	14	-10	1	31	1.31	-1.39	0.61	1.0	4	21	3	7	sw	Ira H. Hailey
Springfield	Greene	1,324	39	37.0	+ 3.5	72	14	-8	1	26	0.72	-1.94	0.43	0.9	6	16	8	7	s	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	36.3	+ 2.7	75	14	-11	1	50	1.20	-1.34	1.06	0.6	4	18	6	7	sw	.....
Southwest Plain.																				
Amoret	Bates	831	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Andrew Rood
Appleton City	St. Clair	853	33	34.4	+ 3.1	67	14	-12	3	34	0.35	-1.48	0.12	0.2	5	14	12	5	sw	W. G. Bigelow
Centerville	Johnson	872	40	.....	.....	.....	.....	.....	.....	.....	0.33	-1.46	0.25	2.0	3	18	8	5	sw	E. A. Markey
Clinton	Henry	765	34	35.2 ^a	+ 3.8	63	14	-11	1	28	1.04	-0.94	0.70	0.5	3	16	7	8	sw	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	31.8	+ 4.6	67	14	-13	1	42	2.05	-1.35	0.22	0.5	2	13	3	15	sw	John H. Patterson
Lamar	Barth	980	40	34.2	+ 1.8	71	14	-10	3	44	0.21	-1.49	0.10	0.0	3	17	8	6	sw	Jesse A. Mann
Lamonte	Pettis	867	26	32.9 ^a	+ 4.2	67	14	-14	3	35	.....	.....	.....	T.	4	13	14	4	sw	J. E. Wheeler
Marshall	Saline	779	38	32.0	+ 4.4	67	14	-12	3	36	0.20	-1.62	0.10	1.0	2	12	5	14	sw	Dr. W. H. Black
Nevada	Vernon	862	34	35.4	+ 3.7	69	14	-9	1	35	0.19	-1.78	0.10	T.	3	25	1	5	sw	George A. Kaupp
Warsaw	Benton	687	27	35.3	+ 2.5	73	14	-16	3	38	0.25	-2.13	0.22	0.2	2	16	10	5	w	Everett Martin
Section means and extremes	.....	.....	.....	34.0	+ 3.4	73	14	-16	3	44	0.35	-1.53	0.70	0.6	2	16	7	8	sw	.....
Northwest Plateau.																				
Bethany	Harrison	916	35	30.3	+ 5.7	63	14	-9	1	32	0.05	-1.25	0.05							

Except as otherwise indicated observations are generally made late in the afternoon, near sunset, and precipitation recorded is for the 24 hours ending at the time of observation. †† Precipitation measured in the morning; amount then recorded is for the preceding 24 hours. †. Trace, or less than 0.01 inch.
*** Regular U. S. Weather Bureau station; precipitation is for 24-hour period, midnight to midnight. ** Precipitation in the next following measurement; separate dates of fall not recorded. ‡ Precipitation is for 24-hour period midnight to midnight.

Daily Temperatures for January, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean		
Northeast Plain.																																		
Brunswick §§.....	Maximum ...	3	8	18	29	38	45	45	43	48	57	55	56	60	66	39	44	41	51	45	25	42	45	48	32	42	28	24	27	38	32	42	39.2	
	Minimum ...	-9	-10	-9	-9	8	17	28	26	28	30	31	30	31	38	35	36	36	36	36	15	13	16	27	30	17	14	14	6	6	24	16	19.6	
Columbia	Maximum ...	1	5	18	30	40	52	47	44	48	58	58	60	57	71	45	46	44	53	51	29	40	44	53	47	43	32	27	29	35	30	41	41.2	
	Minimum ...	-9	-5	-9	10	16	35	36	31	30	34	36	35	42	45	34	40	37	40	29	17	14	30	29	24	20	17	15	7	27	24	21	24.4	
Fayette	Maximum ...	5	10	19	30	39	48	46	48	50	60	60	63	61	69	51	46	45	52	45	37	41	45	53	35	45	33	26	28	38	31	43	42.0	
	Minimum ...	-12	-8	-9	10	10	32	27	24	24	30	26	29	39	32	34	35	35	34	14	10	19	24	29	14	15	16	3	8	22	22	19.2		
Hannibal	Maximum ...	1	5	18	28	38	50	45	44	48	56	54	58	52	70	42	46	45	50	50	28	39	43	46	45	36	34	27	23	30	28	38	39.3	
	Minimum ...	-8	-14	-8	4	13	34	37	30	28	34	37	38	41	41	36	36	35	28	28	13	14	29	29	24	19	13	9	4	19	22	24	22.5	
Jefferson City §§.....	Maximum ...	4	7	23	32	41	55	47	45	55	59	56	63	59	73	48	54	44	55	41	28	40	48	53	38	45	32	26	31	39	41	41	42.4	
	Minimum ...	-10	-8	-9	-4	11	20	38	30	28	30	34	33	41	43	35	36	38	38	38	17	15	27	25	28	29	20	20	8	14	19	29	22.4	
Kirksville	Maximum ...	0	7	16	28	36	44	45	44	48	54	61	55	49	63	54	45	44	45	46	34	40	42	42	40	41	37	24	25	40	32	38	39.3	
	Minimum ...	-9	-7	-7	0	10	31	37	29	27	31	35	36	37	35	31	31	33	34	32	9	9	27	26	25	13	8	13	-1	17	20	20	20.4	
Louisiana	Maximum ...	17	8	18	28	38	53	52	46	48	55	55	58	58	70	70	55	52	46	52	43	36	41	46	45	35	36	24	18	38	32	35	42.2	
	Minimum ...	-9	-18	-13	-7	5	35	39	33	27	32	36	30	42	37	36	37	36	36	37	16	15	28	27	28	15	15	17	4	17	22	18	24.9	
Macon §§.....	Maximum ...	3	9	11	29	38	45	45	45	46	55	58	56	58	67	39	46	47	50	45	23	44	43	49	35	42	29	23	27	41	32	38	39.3	
	Minimum ...	-12	-12	-9	-7	11	14	34	27	25	30	33	34	36	39	32	33	33	33	34	12	11	12	27	28	15	11	13	0	19	21	18	18.6	
Mexico §§.....	Maximum ...	0	7	18	30	38	50	41	46	48	57	57	61	57	70	44	46	43	52	41	25	41	44	48	34	40	29	25	28	26	29	39	39.5	
	Minimum ...	-9	-10	-5	-5	9	17	35	30	30	33	35	35	40	42	34	34	36	36	36	15	15	17	28	30	19	15	5	6	22	23	21.4		
St. Louis(1).....	Maximum ...	5	6	19	32	44	58	49	47	53	60	66	59	71	60	67	44	45	49	34	37	42	45	46	43	36	24	32	38	36	42	42.8		
	Minimum ...	-5	-2	0	11	22	36	41	34	32	40	46	38	44	45	37	41	38	40	34	19	16	27	30	27	24	21	14	8	22	22	23	26.6	
Unionville	Maximum ...	5	8	20	30	42	45	43	42	50	56	54	57	50	63	53	38	44	45	45	36	40	44	42	40	42	38	26	25	32	30	40	39.5	
	Minimum ...	-8	-8	-3	5	10	30	35	27	26	32	30	30	34	34	30	28	30	32	8	10	26	24	20	12	6	10	-3	16	20	15	19.0		
Warrenton	Maximum ...	1	3	22	34	40	57	53	49	54	60	58	63	61	75	71	60	48	44	51	42	41	48	47	46	44	42	30	27	33	34	38	44.4	
	Minimum ...	-11	-9	-7	5	14	32	41	30	28	35	40	35	44	43	35	37	36	38	36	16	12	26	26	25	18	17	18	5	10	21	18	23.0	
Southeast Lowlands.																																		
Campbell	Maximum ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Minimum ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Caruthersville.....	Maximum ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Minimum ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Doniphan	Maximum ...	12	14	21	30	44	56	48	49	52	55	70	70	68	70	67	65	62	50	57	45	38	37	46	54	46	47	38	33	47	38	41	47.4	
	Minimum ...	-2	-1	-4	-1	9	22	35	34	22	25	35	46	40	52	42	45	48	42	42	25	12	20	33	33	18	26	18	12	21	26	28	25.9	
Jackson	Maximum ...	32	23	23	30	43	50	47	47	47	59	61	64	61	67	66	64	65	48	69	45	46	39	45	49	45	43	33	28	39	35	41	46.9	
	Minimum ...	-6	-3	-4	4	8	29	34	32	21	25	27	25	40	41	38	41	41	38	39	22	13	19	19	19	29	19	25	19	8	22	22	18	22.7
Poplar Bluff	Maximum ...	17	13	21	34	47	52	48	54	58	65	77	71	70	71	65	64	61	58	57	46	43	39	48	54	48	51	38	36	43	39	43	49.4	
	Minimum ...	-2	-2	-6	-2	7	29	32	29	20	27	27	25	38	39	39	43	47	40	41	24	10	19	16	32	16	27	16	13	25	26	23	22.3	
Sikeston	Maximum ...	20	13	13	20	30	44	49	47	47	48	61	62	69	69	69	59	70	50	50	50	32	37	38	49	54	44	40	35	32	39	36	44.7	
	Minimum ...	0	-3	-3	-1	7	16	31	35	26	27	34	32	30	46	49	46	48	41	42	27	17	18	24	28	24	24	22	13	13	24	26	24.6	
Cairo, Ill.	Maximum ...	6	12	19	29	41	49	44	46	44	59	63	68	63	67	60	70	59	49	58	35	39	50	53	43	38	33	26	38	36	40	44.4		
	Minimum ...	-2	1	3	11	21	32	37	34	31	35	41	37	48	53	48	48	44	42	38	24	19	27	30	30	26	29	21	12	26	26	25	28.9	
Ozark Plateau.																																		
Arcadia §§.....	Maximum ...	11	7	26	32	45	55	44	52	56	65	67	71	66	70	50	67	44	50	45	29	40	40	51	51	50	42	28	31	42	35	45	45.4	
	Minimum ...	-8	-8	-4	-4	7	13	33	33	24	27	34	25	31	36	38	38	42	39	39	21	13	13	18	17	18	19	8	8	22	22	20.4		
Aurora	Maximum ...	10	10	24	38	50	54	48	51	53	64	65	68	73	72	66	63	58	56	56	38	41	45	52	52	45	43	41	47	41	51	48.9		
	Minimum ...	-7	-3	-6	11	23	38	42	29	27	35	45	42	45	53	42	46	42	42	35	20	15	25	29	25	24	25	24	15	32	30	28	27.8	
Birchtree	Maximum ...	8	10	25	32	48	48	56	48	58	56	65	69	71	72	70	69	69	48	53	41	39	42	48	51	49	47	38	34	47	40	45	48.3	
	Minimum ...	-6	-3	-6																														

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U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, MO., FEBRUARY, 1928.

No. 2

GENERAL SUMMARY.

February, 1928, in Missouri, continued the fine weather record of the preceding winter month, being mainly mild although somewhat wetter than January. Though more than 5° warmer than the normal, it was the coolest of the last four Februarys but on the other side it was the first February with above normal amount of precipitation since 1915. There have been twelve consecutive Februarys on the minus side of the precipitation normals, three or four of these being noticeably lacking in moisture.

If anything, the month was actually milder than the average temperature indicates. Beginning with the 3d, plus temperature departures ranging from 5° to 25° a day prevailed until the 17th, and during the remaining 12 days there were three or four other real spring-like days.

The month had only one general rain period of importance, and this one was about four days, beginning with the 4th. Aside from a moderate cold wave with snow on the 23-24th, there was little precipitation of importance during the latter half of the month. In fact, when viewed from all sides, the month was without any very unusual features of any kind, its characteristic probably being the absence of those elements usually expected in February.

Owing to much cloudiness and deep thawing, and the general bad condition of all earth roads there was little farm activity. Wheat fields showed some little greening in spots but mainly remained in the dormant state. Much is thought to be seriously injured in the southern-third of the State, the result of no snow protection during the few coldest snaps. Live stock has done well as there has been plenty of rough feed. Soil moisture was ample for all winter needs. All fruits continued mainly dormant.

TEMPERATURE.

The monthly mean temperature for the State, 68 stations reporting, was 37.0°, or 5.2° above the normal, and the fourth consecutive February characterized by marked mildness for a winter month. The temperature excess was uniform, all sections experiencing about the same plus departures. Two moderate cold waves overspread the State, on the 18th and the 24th. Zero at Unionville on the 18th, and slightly below zero at Lamonte and Warsaw on the 24th were the only instances of zero cold. The 18th was the coldest day at 47 stations, and the 24th was the coldest for the month at 20 stations. On the 11th temperatures were 70° or higher generally. The average number of days with temperature 32° or lower was 21.

PRECIPITATION.

The monthly precipitation, based upon the reports of 95 stations, was 2.28 inches, slightly more than the 56 years' average and the first February with more than the normal precipitation since 1915. However, the distribution of precipitation was not as uniform as was the temperature distribution. The western and northern divisions received more than the normal, while it was drier than usual in the southeastern lowlands and most of the Ozark Plateau. The larger part of the precipitation fell during the first half of the month, and the heaviest amounts about the 4th to the 6th. The greatest monthly amount was 4.10 inches, at Centerview, Johnson County; and the greatest fall in 24 hours also was at Centerview, 3.25 inches, on the 6th.

The snowfall was light, averaging less than 2 inches for the State as a whole, and soon melted. Some snow fell on the 8th,

14th, 17th, 23d, and 29th, and about three days beginning on the 23d was the longest period with any snow on the ground. Locally in Cass, Johnson, Boone, Audrain, Warren, Dent, Iron, St. Francois Counties the monthly total equaled or exceeded 4 inches.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—4th, 5th, 6th, 13th, and 22d. Nearly all-day general dense fog on 5th and 6th, and at two stations on the 4th.

Halos, lunar.—1st, and 22d

Halos, solar.—15th, 22d, 25th, 28th, and 29th.

Sleet, generally light and unimportant.—13th, 15th, 21st, 22d, 23d, and 29th.

Thunderstorms.—More or less general on the 6th; locally on the 23d.

The 6th, 17th, 19th, and 23d were more or less windy days, but there were no strong or damaging winds anywhere during the month.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine.		Wind.					
		7 a. m.	7 p. m.	Total hours.	Percentage of possible.	Total move- ment, miles.	Average hour- ly velocity.	Max. velocity.			
								Miles per hour.	Direction.	Date.	
Columbia.....	30.12	81	67	165	53	5,763	8.3	26	nw.	17	
Hannibal.....	30.11	77	65	165	53	6,309	9.1	26	sw.	19	
Kansas City.....	30.13	76	62	195	62	7,254	10.4	34	nw.	17	
St. Joseph.....	30.11	78	58	195	63	5,966	8.6	29	nw.	17	
St. Louis.....	30.17	77	68	155	50	8,432	12.1	32	nw.	17	
Springfield.....	30.14	81	61	168	53	6,870	9.9	28	s	6	
Chiro, Ill.....	30.16	78	62	161	52	6,178	8.9	28	nw.	23	
Keokuk, Iowa.....	30.12	74	65	161	52	5,424	7.8	25	sw.	19	

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR FEBRUARY.

Year.	Temperature.				Precipitation.				Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelted.	With .01 inch or more.	Clear.	Partly cloudy.	Cloudy.
1888.....	33.0	+2.0	73	-11	2.04	-0.28	...	...	7	...	...	...
1889.....	29.3	-1.7	73	-9	2.57	+0.25	...	...	7	...	...	...
1890.....	35.5	+4.5	81	-7	2.24	-0.08	...	...	7	...	...	...
1891.....	32.7	+1.7	76	-8	2.28	-0.04	...	2.4	6	...	...	...
1892.....	37.9	+6.7	71	-2	4.15	+1.83	...	...	9	7	6	16
1893.....	27.9	-3.1	65	-20	1.98	-0.34	2.30	4.6	6	10	7	11
1894.....	30.8	-0.2	72	-12	2.52	+0.20	2.60	11.2	6	10	8	10
1895.....	23.6	-7.4	77	-26	0.55	-1.77	1.10	3.3	5	10	10	8
1896.....	35.6	+4.6	81	-10	1.61	-0.71	2.20	4.1	5	12	8	9
1897.....	34.8	+3.8	74	-15	2.30	-0.02	3.60	8.2	7	7	14	14
1898.....	35.4	+4.4	78	-9	1.62	-0.70	2.90	0.8	5	13	6	9
1899.....	20.4	-10.6	72	-32	2.17	-0.15	4.30	5.3	6	12	8	8
1900.....	26.2	-4.8	70	-16	3.92	+1.60	2.85	16.6	10	10	6	12
1901.....	28.1	-2.9	76	-19	1.63	-0.69	2.36	7.6	6	13	7	8
1902.....	24.0	-7.0	72	-17	1.50	-0.82	2.35	5.8	5	11	8	9
1903.....	29.8	-1.2	74	-25	2.92	+0.60	2.65	5.3	7	11	6	11
1904.....	30.0	-1.0	82	-18	0.91	-1.41	1.46	1.5	5	11	8	10
1905.....	21.5	-9.5	69	-40	1.64	-0.68	1.20	13.2	8	11	6	11
1906.....	33.7	+2.7	73	-13	2.28	-0.04	2.40	4.1	7	15	6	7
1907.....	34.8	+3.8	77	-15	1.65	-0.67	3.72	4.5	6	12	5	11
1908.....	35.6	+4.6	78	-7	4.32	+2.00	4.28	4.1	9	13	6	10
1909.....	38.8	+7.8	71	-4	3.38	+1.06	2.50	3.1	9	13	5	10
1910.....	28.3	-2.7	72	-24	1.98	-0.34	3.00	7.7	6	12	6	10
1911.....	38.1	+7.1	87	0	3.64	+1.32	2.08	6.3	8	12	5	11
1912.....	28.3	-2.7	72	-12	2.45	+0.13	3.20	11.9	6	10	7	12
1913.....	29.8	-1.7	78	-9	2.21	-0.18	4.78	8.5	7	12	5	11
1914.....	24.3	-3.2	75	-11	2.71	+0.42	2.80	14.0	7	12	6	10
1915.....	39.4	+8.0	72	7	3.18	+0.81	2.05	4.1	8	9	5	14
1916.....	31.4	+0.2	78	-12	0.98	-1.48	2.70	5.0	5	13	6	10
1917.....	30.5	-1.0	83	-22	0.41	-2.03	1.24	1.4	2	14	7	7
1918.....	34.9	+4.6	83	-25	1.11	-1.26	2.00	0.6	4	15	6	7
1919.....	35.3	+4.0	71	-10	1.98	-0.35	2.20	6.4	7	13	4	11
1920.....	34.5	+3.2	78	-5	0.57	-1.68	1.41	1.2	4	11	6	12
1921.....	40.1	+9.1	86	5	0.94	-1.33	2.00	1.8	4	14	6	8
1922.....	35.4	+4.1	80	-5	1.79	-0.44	1.65	1.9	5	14	6	8
1923.....	30.2	-1.2	75	-9	1.37	-0.88	2.20	1.4	5	13	5	10
1924.....	33.8	+2.0	79	-5	1.84	-0.31	1.60	8.1	7	14	4	11
1925.....	34.7	+6.9	78	1	1.85	-0.30	1.78	1.7	6	12	6	10
1926.....	39.4	+7.6	76	-4	2.08	-0.07	2.00	2.9	6	11	6	11
1927.....	41.3	+9.5	78	1	1.08	-1.07	1.48	2.3	5	10	8	10
1928.....	37.0	+5.2	71	-2	2.28	+0.13	3.25	1.8	7	12	6	11

Climatological Data for February, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain.																				
Brunswick	Chariton	652	48	34.2	+ 5.1	65	12	7	18†	44	2.35	+0.50	1.05	0.7	7	12	4	13	sw.	O. K. Benecke
Clifton Hill	Randolph	731	28	34.9	+ 5.7	66	12	4	18	38	2.03	+0.70	0.89	1.0	8	11	7	11	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	36.4	+ 4.7	66	12	7	18	31	2.10	-0.12	1.01	4.0	10	13	4	12	nw	U. S. Weather Bureau
Downing	Schuyler	876	6	34.0 ^a	.....	61	13	2	18	38	2.41	+1.01	0.92	1.5	9	13 ^a	5 ^a	10 ^a	w	James Taylor
Kayette	Howard	661	47	34.6	+ 4.4	65	11	4	24	43	2.16	+0.26	1.25	T.	6	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	35.6	+ 2.9	68	13	7	18	30	1.03	-0.86	0.41	2.0	10	7	11	11	.....	Chamber of Commerce
Gorin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	2.74	+1.25	1.31	T.	6	8	7	14	nw.	J. W. Pulliam
Hannibal	Marion	534	35	35.8	+ 6.1	61	12	7	18	30	2.02	+0.35	0.89	0.9	9	10	7	12	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	36.7	+ 5.8	67	12	6	24	38	1.60	-0.49	0.70	3.0	9	12	5	12	n.	Miss Emma Swift
Kirksville	Adair	969	38	33.8	+ 7.9	62	12	2	18	34	1.96	+0.14	0.85	0.5	6	12	2	15	nw.	Prof. J. S. Stokes
Louisiana ††	Pike	469	33	37.1	+ 7.4	60	12†	2	24	41	2.91	+0.56	1.20	1.1	9	12	7	10	w.	J. T. Farrell
Macon	Nacoe	875	28	33.7	+ 5.0	66	12	3	18	47	2.24	+0.29	1.15	2.0	7	15	5	9	sw.	W. C. Brown
Mexico	Audrain	800	38	35.2	+ 5.9	66	12	7	18	36	2.22	+0.01	0.83	5.0	11	18	0	11	w.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	2.65	.....	0.82	T.	9	14	5	10	se.	J. S. Conway
St. Charles	St. Charles	456	39	36.7	+ 4.2	64	28	9	24	34	2.19	-0.44	0.60	6.0	7	10	10	9	nw.	L. C. Saeger
St. Louis (1)	St. Louis City	568	53	37.6	+ 2.6	62	28	11	18	30	2.43	-0.20	0.89	5.1	9	13	4	12	w	U. S. Weather Bureau
St. Louis (2)	.....do.....	578	15	36.4	+ 4.2	60	28	10	18	30	2.99	+0.68	1.02	7.5	9	14	2	13	w.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	2.55	+0.63	1.18	T.	7	.....	.....	.....	.....	J. C. Jewett
Steffensville	Lewis	650	29	35.0	+ 6.6	62	12	4	18	31	2.24	+0.39	0.85	2.5	8	12	8	9	n.	Frank Hall
Unionville	Putnam	1,062	34	33.3	+ 7.9	62	12	0	18	36	3.26	+1.43	1.05	2.0	10	12	7	10	nw.	Geo. W. Davis
Warrenton	Warren	816	45	37.0	+ 7.1	65	12	7	18†	35	1.70	-0.49	0.40	4.0	9	13	5	11	nw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	34.2	+ 5.9	59	3	6	18	27	1.75	+0.15	0.73	1.7	8	11	5	13	nw.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	35.4	+ 5.5	68	13	0	18	47	2.25	+0.27	1.31	2.3	8	12	6	11	nw.	.....
Southeast Lowlands.																				
Campbell	Dunklin	314	2	41.2	.....	73	6	14	18	36	3.14	.....	0.75	0.0	10	14	4	11	n.	Jeff. King
Caruthersville	Pennsco	265	31	41.8	+ 2.9	66	6†	11	18	31	2.29	-1.51	0.84	0.0	8	12	6	11	s.	Sam Smith
Douphan	Ripley	344	23	40.2	+ 2.1	68	11	12	18†	42	2.97	-0.18	0.75	1.0	8	11	10	8	se.	W. W. Martin
Jackson	Cape Girardeau	428	36	38.2	+ 2.7	64	12	10	18	39	3.42	+0.53	1.01	3.0	9	10	4	15	n.	John G. Putz
Marble Hill	Bollinger	470	32	39.1	+ 3.8	66	11	11	18†	43	3.82	+0.54	1.04	T.	11	13	1	15	n.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	3.37	+0.11	0.79	T.	8	14	2	13	sw.	John A. Spence
Poplar Bluff	Butler	339	23	41.3	+ 5.0	71	11	14	18†	41	3.38	+0.42	0.82	1.0	8	14	3	12	w.	J. H. Wolpert
Sikeston	Scott	318	22	38.1	+ 1.5	67	7	12	25	32	2.41	-0.85	0.62	0.0	8	.....	.....	.....	sw.	R. B. Drummond
Cairo, Ill.	Alexander, Ill.	358	52	40.0	+ 1.5	67	6	13	18	27	2.58	-0.64	0.83	0.3	11	10	5	14	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	38.9	+ 2.8	71	11	10	18	43	3.04	-0.20	1.04	0.6	9	12	4	13	sw.	.....
Ozark Plateau.																				
Arcadia	Iron	926	46	35.7	+ 2.2	68	11	7	18†	44	1.48	-1.68	0.70	T.	6	18	1	10	nw.	Arcadia College
Aurora	Lawrence	1,370	37	39.7	+ 6.1	65	5†	11	18	31	1.58	-1.24	0.49	T.	6	10	8	11	nw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	39.1	+ 4.2	69	11	10	18†	41	2.54	+0.05	0.65	1.0	7	13	4	12	nw.	W. H. Kirkendall
Bolivar	Polk	1,071	33	40.0	+ 5.6	68	5	8	24	33	2.61	+0.32	1.60	1.0	4	14	6	9	sw.	Southwest Baptist College
Dean ††	McDonald	1,000	28	41.6 ^a	+ 6.8	68	6	12	25	39	1.21	-0.62	0.52	T.	6	18 ^b	2 ^b	7 ^b	w.	H. E. Dean
Eldon	Miller	934	31	36.6 ^b	+ 4.7	68	11	6	24	42	1.38	-0.72	0.34	0.7	8	6	13	10	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	37.0	+ 1.4	65	12	8	24	40	2.38	-0.91	0.57	4.5	10	10	8	11	w.	Robert Forsyth
Goodland	Iron	1,000	33	38.4	+ 5.5	70	11	4	24	60	1.18	-1.31	0.35	5.0	8	15	1	13	n.	F. M. Adams
Greenville	Wayne	930	5	38.6	.....	66	11†	10	18	44	2.72	.....	0.85	0.2	9	13	3	13	nw.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	2.15	.....	0.80	3.0	7	17	6	6	sw	A. W. Madison
Koshkonong	Oregon	968	26	41.2	+ 3.7	70	11	11	18	36	2.23	-0.56	0.55	0.0	8	12	3	14	w.	R. M. Blitt
Lebanon	Laclede	1,267	39	35.6	+ 1.7	66	11	3	24	39	1.41	-1.09	0.42	1.0	8	14	3	12	w.	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	39.4	+ 3.9	65	5†	6	24	36	1.57	-0.40	0.80	2.0	5	13	10	6	nw.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	37.6	+ 3.8	68	11	7	18	44	2.28	+0.02	0.39	0.5	10	16	4	9	nw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	40.1	+ 3.5	63	6†	8	24	40	1.76	-0.62	0.55	1.0	7	17	3	9	nw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	37.9	+ 2.7	67	11	6	18	35	1.64	-0.70	0.46	5.0	7	12	6	11	w.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	37.2	+ 2.7	66	11	6	24	38	2.23	-0.15	0.68	5.6	9	14	1	14	nw.	A. C. Leach
Seligman	Barry	1,642	25	40.2 ^e	+ 4.0	67	11	9	18	38	2.39	+0.51	0.60	4.0	7	12†	4†	7†	sw.	Floyd E. Fawver
Seymour (near)	Webster	1,642	21	37.5	+ 5.1	67	11	7	18	39	2.14	-0.31	0.58	0.5	7	12†	7†	10	nw.	Ira H. Hailey
Springfield	Greene	1,324	39	38.2	+ 3.0	63	11	9	18	29	1.09	-1.29	0.44	1.0	5	13	6	10	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	38.5	+ 3.9	70	11	3	24	60	1.89	-0.61	1.60	1.8	7	14	5	10	nw.	.....
Southwest Plain.																				
Amoret	Bates	831	20	.....	.....	.....	.....	.....	.....	.....	2.53	+0.56	1.53	.....	10	.....	.....	.....	.....	Andrew Rood
Appleton City	St. Clair	853	33	38.6	+ 6.3	64	6†	8	24	36	2.53	+0.56	1.53	0.5	10	.....	.....	.....	.....	W. G. Bigelow
Centerville	Johnson	872	40	38.0	+ 6.7	65	11†	8	18†	31	4.10	+1.97	3.25	5.0	4	13	5	11	sw.	E. A. Markey
Clinton	Henry	765	34	39.2	+ 7.3	66	12	9	24	32	3.12	+1.02	1.65	3.0	7	9	10	10	nw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	34.6	+ 4.9	66	11	2	24	46	2.70	+0.68	1.39	4.0	6	12	0	17	nw.	John H. Patterson
Lamar	Barton	980	40	37.6	+ 3.1	67	5†	4	24	35	3.53	+1.30	2.20	3.0	7	13	5	11	sw.	Jesse A. Mann
Lamonte ††	Pettis	767	26	36.0	+ 4.4	69	12	- 2	24	36	2.59	+0.68	1.54	3.0	8	8	11	10	nw.	J. E. Wheeler
Marshall	Saline	879	38	37.4 ^a	+ 7.9	67	12	6	18	34	2.03	+0.19	0.81	1.0	6	8 ^a	8 ^a	12 ^a	sw.	Dr. W. H. Black
Nevada	Vernon	862	34	40.4	+ 8.5	69	5	5	24	34	2.44	+0.36	1.75	1.0	3	12	7	10	s.	George A. Kaupp
Warsaw	Beuton	687	27	39.4	+ 6.1	70	11	- 1	24	55	2.48	-0.08	1.45	1.0	4	10	8	11	w.	Everett Martin
Section means and extremes	.....	.....	.....	37.9	+ 6.1	70	11	- 2	24	55	2.84	+0.74	3.2							

Daily Precipitation for February, 1928

Stations.	Drainage-basins.	Day of month.																												Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29		
Northeast Plain.																																	
Boonville ¹	Missouri				.01	.13	.03	.80	.05					.05	.11									.11	.01						1.30		
Brunswick ¹	Grand					.35	.12	1.05	.15					.20	.40									.08							2.35		
Clifton Hill ¹	Chariton				.35	.10	.80	.27	.10					.26	T.									.10						.05	2.03		
Columbia ^{2,3,4}	Missouri				.25	1.01	.01	.04	.07				.01	.35	.02									T.	.17						.17	2.10	
Downing ¹	Mississippi				.44	.04	.92	.20	.10					.48	.05									.08								2.41	
Fayette ¹	Missouri				.32	.07		1.25	.06					.29											.17							2.16	
Flinton ¹	do				.04	.15	.01	.41	.03					.15	.06									.08							.03	1.03	
Gorin ¹	Mississippi				.64			1.31	.35	.12				.28	.04								T.	.07								2.74	
Hannibal ^{2,3,4}	do				T.	.72	.17	.75	T.	.04				.21	.03								.05	.04			T.					2.02	
Hermann ¹	Missouri				.14	.30		.50	.05					.18	.05								.02	.03	.09							1.36	
Jefferson City ¹	do				.05	.22	.07	.70	.07					.12	.13								T.	.14							.10	1.60	
Kirksville ¹	Mississippi				.37	.05	.85	.20						.44									.05									1.96	
Louisiana ¹	do				1.20	.42	.12	.71	.06					.28	T.								.01	.10								2.91	
Macou ¹	Chariton				.03	.50	.23	1.15	.12						.09									.12								2.24	
Mexico ¹	Mississippi				.02	.32	.02	.83	.10					.21	.20								.03	.16	.30							2.22	
Milan ¹	Grand				.20	.50	.90	.90	.15					.15	.40								.25									2.55	
Monroe City ¹	Mississippi				.51	.44	.82	.38	.08					.31	.06								.02	.03								2.65	
Pacific ¹	Meramec					.86	.05	.22	.06	.03				.10	.15									.18	.04							1.69	
St. Charles ¹	Missouri				.59	.21	.01	.29	.14					.35									T.	T.								2.19	
St. Louis (1) ^{2,3,4}	Mississippi				.87	.04	.25	.06	.05					.45	T.								.18	.05			T.				.60	2.43	
St. Louis (2) ²	do				1.02	.07	.29	.13	.03					.52	T.								.16	.05							.72	2.99	
Shelbina ¹	do					.80	.08	1.18	.07					.17	.19									.06								2.55	
Steffenville ¹	do				.35	T.	.85	.35	.10					.40	T.								.07	.07								2.24	
Union ¹	Meramec				.05	.48	.02	.36	.05					.12	.30								.01	.12	.10							1.61	
Unionville ¹	Chariton				.35	.04	1.05	.35	.08	.04				.75	.30							.10		.20								3.26	
Warrenton ¹	Mississippi					.04	.16	.07	.40	.03				.30	T.								T.	.02	.06						.26	1.70	
Keokuk, Ia. ^{2,3,4}	do				T.	.60	T.	.73	T.	.08				.20	.01							.04										1.75	
Southeast Lowlands																																	
Campbell ¹	St. Francis				.42	.17	.42	.15						.27	.17								.44	.75						.10		3.14	
Cape Girardeau ¹	Mississippi					.25	.02	1.10	.04					.10	.40	.01							.14	.48	.68							3.44	
Camthersville ¹	do					.20		.84						.13	.18								.12	.37	.40							2.29	
Dexter ¹	St. Francis					.76	.05	.63						.12	.24								.15	.47	.64						.08	3.39	
Doniphan ¹	Black				.15	.55	.30							.36	.14								.37	.75							T.	2.97	
Jackson ¹	Mississippi					.10		1.01	.02					.23	.37								.37	.94							.28	3.42	
Marble Hill ¹	Mississippi				.10	.15	.10	.52						.30	.43								.32	1.04							.30	3.82	
Morehouse ¹	do					.70		.68						.22	.20								.39	.79							.11	3.37	
New Madrid ¹	do					.70		.80	.01					.12	.23								.11	.41	.81							3.39	
Poplar Bluff ¹	Black					.65		.72						.25	.13								.29	.27	.82			T.				3.38	
Sikeston ¹	Mississippi						.53	.36						.10	.13								.16	.38	.62							2.41	
Chiro, Ill. ^{2,3,4}	do				.14	.08	.50	.01	.01					.14	.18	T.	T.						.31	.83						.12		2.58	
Osark Plateau.																																	
Arcadia ¹	St. Francis								.28					.04	.70								.06	T.								1.48	
Aurora ¹	Neosho				.23		.49	.03	T.					.23	.34								T.	.26								1.58	
Birchtree (near) ¹	Black					.25	.35								.65								.13								.15	2.54	
Bolivar ¹	Osage					1.60								.85									.06	.10								2.61	
Caplinger Mills ¹	Osage				.26		1.29	.06	T.					.54	.06								T.	.01								.04	2.47
Denn ¹	Neosho				.22		.52	.01	.02					.30									.14									1.21	
Eldon ¹	Missouri					.22	.07	.34	.08					.24	.30									.02								1.38	
Farmington ¹	St. Francis				.12	.11	.30	.04						.32	.57								.04	.28	.23						.37	2.38	
Fredericktown ¹	do					.25		.25			.35			.20	.50								.05									2.30	
Galeum ¹	White					.36	.25		.10					.15	.32									.35								1.53	
Goodland ¹	Black				.22		.20	.06						.10	.10								.05								.35	1.18	
Greenville ¹	St. Francis				.14	.15	T.	.30	T.					.27	.26								.24	.29	.85			T.			.22	2.72	
Hailey ¹	White				.40				.80					.20									.10	.05								2.15	
Koshkonong ¹	Black				.18	.09	.34							.20	.23								.25	.39	.55						T.	2.23	
Lebanon ¹	Osage				.10	.20	.42		.16	T.				.21	.12									.08		.12						T.	1.41
Lockwood ¹	do				.25		.80	.05						.29											.18							1.57	
Mountain Grove ¹	White				.21	.28	.03	.39	.04	T.				.26	.51								.10		.30	T.	T.					2.28	
Neosho ¹	Neosho				T.	T.	.35	.55	.08	.03				.27	.38								T.		.16	.30	T.	T.				1.76	
Owensville ¹	Gasconade				.40			.27	.12	.12					.33																	1.24	
Rolla ¹	Merame																																

Daily Temperatures for February, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Mean		
Northeast Plain.																																
Brunswick §§.....	Maximum ...	35	53	58	56	39	52	37	35	56	54	65	38	33	39	44	31	30	61	23	54	51	24	28	32	46	51	55	48	...	43.7	
	Minimum ...	16	16	25	31	37	37	32	31	26	27	32	38	29	27	26	25	7	7	22	22	25	15	12	15	25	25	28	32	...	21.6	
Columbia	Maximum ...	37	59	61	56	54	56	52	37	57	61	66	51	38	35	41	36	20	46	32	44	48	44	27	28	41	49	56	47	...	45.2	
	Minimum ...	20	24	39	53	39	39	35	32	31	26	31	39	38	29	29	26	10	7	19	23	25	37	14	7	11	19	31	34	...	27.6	
Fayette.....	Maximum ...	39	52	61	56	51	53	41	41	36	59	65	63	50	45	39	45	35	33	51	36	45	46	37	32	31	41	54	59	...	46.5	
	Minimum ...	14	16	25	30	37	35	38	31	29	24	26	29	32	27	26	23	27	5	8	20	22	28	14	4	8	18	18	22	...	22.8	
Hannibal	Maximum ...	34	59	58	56	52	51	51	38	35	55	53	61	48	45	37	41	34	21	47	29	41	44	42	27	25	45	50	51	...	43.8	
	Minimum ...	18	23	35	52	35	33	38	36	31	29	36	36	39	32	31	30	12	7	17	21	22	34	16	13	14	19	32	32	...	27.7	
Jefferson City §§.....	Maximum ...	35	57	63	57	50	59	44	38	36	59	65	67	50	37	37	43	30	48	37	45	50	29	29	35	48	51	66	45	...	46.6	
	Minimum ...	20	20	26	38	48	39	42	33	30	26	30	26	38	31	31	26	28	8	10	21	23	16	6	13	18	29	29	32	...	26.8	
Kirksville	Maximum ...	36	51	58	55	54	40	45	34	34	54	56	62	49	44	37	42	37	20	46	37	37	41	42	27	29	46	50	54	...	43.7	
	Minimum ...	14	21	29	47	31	32	32	31	29	26	31	29	39	29	21	21	13	2	12	17	20	33	10	9	9	16	26	30	...	24.0	
Louisiana	Maximum ...	38	48	58	57	54	48	53	47	38	55	56	60	60	52	48	40	50	50	45	40	42	42	30	28	42	48	55	55	...	47.6	
	Minimum ...	18	18	29	45	35	36	42	34	35	28	30	31	38	32	32	26	25	9	12	21	20	33	18	2	12	11	24	28	...	26.6	
Macon§§.....	Maximum ...	34	52	61	57	37	48	41	36	37	55	59	66	47	33	40	43	33	29	52	32	43	47	25	30	29	46	51	56	...	44.7	
	Minimum ...	10	15	27	34	33	33	35	31	30	26	30	33	40	28	27	24	27	3	5	17	20	25	12	6	8	16	20	24	...	23.7	
Mexico§§.....	Maximum ...	36	53	61	56	39	57	44	37	36	58	57	66	48	33	39	48	36	27	48	35	47	46	27	31	30	45	51	59	...	44.8	
	Minimum ...	18	19	25	37	36	36	37	33	31	29	32	35	37	30	30	27	28	7	8	21	21	21	19	8	10	14	23	31	...	25.6	
St. Louis(1).....	Maximum ...	37	51	61	55	53	54	57	41	37	56	54	59	48	47	36	42	42	24	47	36	36	42	43	30	27	45	51	62	...	45.5	
	Minimum ...	21	25	38	49	37	37	40	35	32	30	41	37	42	33	32	31	17	11	17	25	24	34	19	16	16	19	34	34	...	29.6	
Unionville.....	Maximum ...	40	50	60	57	50	38	43	36	34	54	56	62	55	43	38	38	37	20	43	38	37	46	43	24	30	47	50	50	...	43.7	
	Minimum ...	10	20	24	45	30	32	32	32	30	27	30	31	35	28	22	22	14	0	10	15	17	34	8	9	6	15	25	30	...	22.9	
Warrenton.....	Maximum ...	37	55	61	55	54	43	56	43	37	59	59	65	62	47	35	41	40	24	49	44	41	44	42	27	28	46	50	62	...	47.0	
	Minimum ...	17	21	34	48	38	37	41	33	30	26	35	35	39	31	30	25	22	7	14	21	21	16	7	10	16	30	31	32	...	26.9	
Southeast Lowlands.																																
Campbell.....	Maximum ...	43	52	61	62	62	73	61	53	45	55	68	66	54	53	40	50	45	38	45	48	46	45	44	47	42	44	55	63	...	52.3	
	Minimum ...	24	18	25	44	53	50	48	41	32	23	32	32	45	36	26	28	32	14	15	28	25	29	28	18	23	24	25	27	...	30.2	
Caruthersville.....	Maximum ...	36	47	64	60	61	66	66	53	45	50	57	58	58	52	39	45	45	41	41	41	43	47	47	31	31	37	50	57	...	49.1	
	Minimum ...	34	27	33	46	53	51	53	45	38	29	38	41	47	39	30	33	35	11	20	31	29	41	30	21	25	22	27	32	...	34.4	
Doniphan.....	Maximum ...	43	49	56	66	61	65	61	49	48	62	68	65	58	56	40	46	43	35	48	46	46	44	44	37	40	45	56	64	...	51.6	
	Minimum ...	22	17	22	40	53	48	47	40	38	21	28	33	46	35	35	26	30	12	12	21	25	35	29	15	16	15	22	22	...	28.9	
Jackson.....	Maximum ...	39	48	57	59	59	61	61	52	44	52	60	64	59	52	39	47	44	39	44	43	39	43	45	38	31	34	55	62	...	49.3	
	Minimum ...	22	13	23	41	42	41	48	38	32	25	31	31	43	33	28	25	30	10	14	25	19	30	22	12	19	15	24	23	...	27.2	
Poplar Bluff.....	Maximum ...	49	54	61	63	59	65	61	60	50	62	71	68	56	49	52	46	39	52	46	39	46	53	44	45	47	42	46	59	67	...	53.2
	Minimum ...	23	15	24	35	53	48	49	42	33	22	30	33	46	35	31	27	32	14	14	21	26	35	29	17	23	17	23	23	...	29.4	
Sikeston.....	Maximum ...	38	39	47	61	63	53	67	62	43	39	53	61	63	51	41	39	49	43	27	44	43	42	46	46	31	37	41	54	...	47.7	
	Minimum ...	26	19	21	29	45	46	47	42	37	26	27	34	37	39	29	30	31	13	13	22	24	26	37	17	12	18	22	27	...	28.5	
Cairo, Ill.	Maximum ...	36	47	61	64	58	67	62	49	41	51	59	62	52	49	38	45	42	26	42	40	42	45	48	30	30	39	52	50	...	47.7	
	Minimum ...	28	24	37	47	49	46	49	41	35	31	40	39	46	36	34	33	23	13	20	30	27	40	21	17	21	18	30	33	...	32.4	
Ozark Plateau.																																
Arcadia§§.....	Maximum ...	42	51	61	56	57	59	54	38	36	59	68	53	49	35	34	47	41	28	50	42	38	44	43	35	33	47	55	63	...	46.9	
	Minimum ...	21	13	27	34	46	41	36	31	23	24	29	30	33	31	25	25	7	7	17	17	22	33	11	11	13	17	18	21	...	24.5	
Aurora.....	Maximum ...	42	57	60	58	65	63	59	39	41	55	65	60	56	46	39	39	36	24	48	42	48	53	47	30	33	45	53	64	...	49.0	
	Minimum ...	25	26	41	52	54	54	37	31	30	28	36	39	43	27	23	25	21	11	23	24	27	37	18	11	16	22	30	33	...	30.4	
Birchtree.....	Maximum ...	41	53	63	59	64	60	59	43	39	69	69	65	59	48	35	46	41	27	50	44	39	43	44	34	35	46	55	61	...	49.8	
	Minimum ...	24	16	29	43	51	49	43	36	32	23	37	37	45	31	31	24	27	10	11	25	24	33	24	10	18	15	21	23	...	28.4	
Eldon §§.....	Maximum ...	38	56	62	56	55	60	44	35	35	59	68	67	46	32	31	43	38	25	48	38	45	...	48	32	47	51	63	...	47.0		
	Minimum ...	21	22	23	35	52	42	44	35	31	2																					

51.05
Nms
1.32³

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, MO., MARCH, 1928. No. 3.

GENERAL SUMMARY.

March, 1928, in Missouri, was an outstanding March for small rainfall, lack of snowfall, and bright sunny weather. There were some temperature contrasts, but the month was mainly mild. The first five days were the coldest of the month and were characteristic of the usual March. Immediately following upon this, a mild spell prevailed up to the 14th; and then a summer-like spell was general from the 21st to the 25th. The month ended with the night temperature approximating freezing values, but days moderate.

There was a noticeable lack of precipitation across the central part of the State on both sides of the Missouri River, a section varying between 60 and 120 miles, where, as a rule, less than eight-tenths of an inch fell as a total for the month, some stations reporting this the driest March of record.

Over most of Missouri the snowfall was unusually light, but over a large part of the Ozark Plateau there was a heavy fall of snow on the 15-16th, the beginning of the storm being a mixture of rain, sleet and snow. Twenty-four hours after the storm there was very little snow left on the ground. Apparently there was little interference with business and traffic, but winter grain and the soil generally was benefited by the moisture.

The month was exceptionally favorable for outdoor work in all sections. A large seeding of oats was accomplished, and much plowing was done for corn. Some local planting was done in the more southern counties. Potato planting was much increased over the usual. Fall sown grains did well. Much late sown wheat was winterkilled by a cold snap in December and about the first of January when subzero temperatures obtained.

TEMPERATURE.

The monthly mean temperature for the State, as determined from the records of 67 stations, was 46.3°, 2.5° above the normal, and approximately the same as March, 1927. In the southeastern lowlands temperatures averaged slightly below the normal and there was only a slight excess in the Ozark Plateau, while in the other three divisions the excess averaged about 4°. There were three cool and three warm spells during the month, the warm ones being somewhat more marked and persistent than the cool spells. From about the 21st to the 24th, inclusive, summer like weather prevailed, the afternoon maxima ranging from 85° to 89°. The first five days of the month were the coldest, when the minima ranged from about 10° above zero in the northern counties to 20° in the southeast. The average number of days with minimum temperature 32° or lower was 18.

PRECIPITATION.

The monthly precipitation, based upon the records of 99 stations, was 1.54 inches, and about 1.46 inches less than the 56 years' average. The precipitation was deficient in all sections. In the northern tier of counties from about Worth and Gentry east to Clark and south to Audrain the total monthly fall was about one-third of the normal; over the southern third of the State from west to the east line the total amounted to about two-thirds of the normal. In all the remainder embracing the central portions the moisture was very scanty, the totals for the entire month being generally less than eight-tenths of an inch. The greatest monthly fall was 3.56 inches at Bolivar, and the least, 0.11 inch, occurred at Lamonte. The greatest 24-hour amount was 1.60 inches, at Lebanon on the 16th.

A heavy snow fell over the Ozark region from Dade to about Madison County on the 15-16th. Rolla with 14 inches, Steel-

ville 11.5, Springfield with 9.8, and Lebanon and Lockwood with 8 inches, were the heaviest amounts. All had melted in about two days. In general the snowfall of this March was unimportant from the economic point of view, the ground being bare during the coldest periods, as well as most of the month.

MISCELLANEOUS PHENOMENA.

Anrora.---At Tarkio on the 2d, and Hailey on the 14th.

Fogs, dense.---11th, 25th, and 26th.

Hail.---Small hail without damage at five or six widely separated points on the 25th.

Halos, lunar.---12th, 24th, 25th, and 29th.

Halos, solar.---3d, 5th, 10th, 11th, 12th, 14th, 16th, 17th, 18th, 25th, and 30th.

Sleet.---In the Ozarks from Barry County eastward to New Madrid---a mixture of rain, sleet and snow---on the 15th. No damage or interruption of business of traffic reported.

Thunderstorms.---Local thunder on the 8th, 11th, 12th, 15th, 26th, 28th, and 29th. General on the 4th, and 25th.

Although winds were brisk to strong generally on the 16th, 19th, 26th, 28th, and 29th, the month was free from any damaging storms.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine.			Wind.			
		7 a. m.	7 p. m.	Total hours.	Percentage of possible.	Total move- ment, miles.	Average hour- ly velocity.	Max. velocity.		
								Miles per hour.	Direction.	Date.
Columbia.....	29.99	75	48	262	71	6,230	8.4	32	nw.	26
Hannibal.....	30.00	73	..	..	..	6,761	9.1	25	ne.	29
Kansas City.....	29.99	72	48	291	78	7,744	10.4	37	nw.	26
St. Joseph.....	29.98	75	43	260	70	6,219	8.4	30	nw.	26
St. Louis.....	30.00	79	65	216	58	8,729	11.7	36	nw.	26
Springfield.....	30.00	78	52	262	71	7,275	9.8	34	se.	28
Cairo, Ill.....	30.02	79	58	..	..	7,028	9.4	33	nw.	26
Keokuk, Iowa.....	30.02	76	51	254	68	5,711	7.7	25	w.	12

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR MARCH.

Year.	Temperature.				Precipitation.				Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelted.	With .01 inch or more.	Clear.	Partly cloudy.	Cloudy.
1888.....	38.5	-4.8	90	1	4.02	+1.11	....	....	10	....	....	....
1889.....	44.3	+1.0	84	13	1.98	-0.93	....	....	5	....	....	....
1890.....	37.3	-6.0	76	-11	2.61	-0.30	....	5.7	8	....	....	....
1891.....	36.6	-6.7	73	-11	3.01	+0.10	....	7.1	10	....	....	....
1892.....	38.9	-4.4	87	5	3.11	+0.20	....	....	8	8	10	13
1893.....	40.5	-2.8	86	1	2.86	-0.05	2.15	3.2	7	11	10	10
1894.....	47.7	+4.4	89	2	2.93	+0.02	3.20	0.2	6	15	9	7
1895.....	42.4	-0.9	98	0	2.14	-0.77	3.00	4.4	9	14	7	10
1896.....	39.2	-3.9	82	2	2.05	-0.86	4.47	5.2	8	11	9	11
1897.....	44.2	+0.9	93	-5	6.07	+3.16	4.10	1.0	2	9	9	13
1898.....	44.7	+1.4	83	9	7.09	+4.18	3.87	0.6	11	11	7	13
1899.....	37.4	-4.1	78	-8	2.93	+0.02	4.30	8.9	16	9	11	11
1900.....	40.4	-1.9	88	-4	1.48	-1.43	3.41	0.2	6	15	9	7
1901.....	42.7	-0.6	85	-1	3.74	+0.83	3.21	1.8	8	11	8	12
1902.....	45.3	+2.0	85	1	3.49	+0.58	5.60	0.8	9	10	10	11
1903.....	46.8	+3.5	81	9	3.35	+0.44	6.19	1.1	8	13	7	11
1904.....	44.8	+1.5	87	8	4.14	+1.23	7.50	1.2	9	11	9	11
1905.....	50.3	+7.0	88	10	2.99	+0.08	2.67	T.	8	11	8	12
1906.....	34.6	-8.7	75	-5	3.93	+1.02	3.00	8.6	11	6	7	18
1907.....	53.9	+10.6	95	16	2.82	-0.09	3.08	1.0	7	14	7	10
1908.....	50.1	+6.8	89	14	2.58	-0.33	2.55	1.0	7	14	7	10
1909.....	44.5	+1.2	81	9	3.07	+0.16	3.30	0.6	6	13	9	9
1910.....	55.8	+12.5	96	15	0.66	-2.25	2.25	0.1	2	20	7	4
1911.....	46.8	+3.5	91	5	1.85	-1.06	2.00	1.4	6	16	8	7
1912.....	35.2	-8.1	89	-4	4.62	+1.71	2.85	16.5	11	12	6	13
1913.....	40.6	-3.7	84	-12	4.36	+1.31	7.97	5.0	9	12	8	11
1914.....	43.2	-1.3	87	-2	2.75	-0.41	3.01	4.7	8	13	7	11
1915.....	56.4	-8.1	70	6	1.50	-1.74	1.85	7.9	6	7	8	16
1916.....	47.0	+1.3	95	-2	2.53	-0.65	4.25	3.1	7	14	8	9
1917.....	45.2	+1.7	86	-7	2.91	-0.42	4.08	1.5	7	15	7	9
1918.....	50.9	+7.8	95	8	0.94	-2.05	2.25	0.1	4	18	6	7
1919.....	46.3	+2.9	90	-2	2.40	-0.69	5.37	0.7	6	15	8	8
1920.....	44.6	+1.4	86	-6	5.01	+2.09	6.00	1.4	8	15	6	10
1921.....	51.9	+8.5	90	11	4.69	+1.68	2.88	0.5	10	13	9	9
1922.....	45.6	+1.4	80	3	6.46	+3.38	4.00	2.2	12	11	6	14
1923.....	40.4	-3.1	83	-11	4.12	+1.00	2.84	2.3	8	14	6	11
1924.....	38.4	-5.4	80	8	2.55	-0.45	2.38	9.4	8	8	8	15
1925.....	47.7	+3.9	86	-5	1.95	-1.05	2.55	0.8	5	17	8	12
1926.....	32.6	-4.2	83	8	2.89	-0.11	1.77	7.0	8	13	6	6
1927.....	45.9	+2.1	80	0	5.87	+2.87	4.90	3.7	11	12	8	11
1928.....	46.3	+2.5	89	10	1.54	-1.46	1.60	2.4	5	15	9	7

Climatological Data for March, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.			Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.			Partly cloudy.	Cloudy.
Northeast Plain.																			
Brunswick	Chariton	652	48	44.8	+ 3.0	89	22	15	5	54	0.17	-2.39	0.07	0	4	19	11	ne.	O. K. Benecke
Clifton Hill	Randolph	731	28	43.9	+ 1.7	86	23	13	5	49	0.47	-2.18	0.18	0.2	3	14	10	7	Dr. A. J. Bradsher
Columbia	Boone	784	37	46.0	+ 3.4	83	22	18	5	41	0.69	-2.34	0.48	0.3	6	11	12	8	U. S. Weather Bureau
Dowling	Schuyler	876	6	44.0	.....	81	23	12	5	40	1.67	-0.69	0.70	2.0	5	17	9	5	James Taylor
Fayette	Howard	661	47	43.5	+ 1.4	89	22	14	5	59	0.73	-2.08	0.31	1.0	4	..	..	..	J. D. Settle
Fulton	Callaway	818	39	44.8	+ 0.4	82	23 [†]	17	5	35	0.70	-2.34	0.33	1.6	7	10	18	3	Chamber of Commerce
Garin	Scotland	700	40	..	.....	..	..	..	..	..	1.27	-1.19	0.56	1.8	6	11	8	12	J. W. Pulliam
Hannibal	Marion	534	35	44.0	+ 3.0	82	23	17	5	37	0.93	-1.83	0.28	0.8	9	10	13	8	U. S. Weather Bureau
Jefferson City	Cole	557	39	46.8	+ 3.6	85	22	17	5	45	0.55	-2.27	0.20	2.0	5	21	5	5	n.
Kirksville	Adair	969	38	43.2 ^b	+ 3.7	82	23	12	5	49	0.97	-1.80	0.42	2.0	3	19 ^b	2 ^b	8 ^b	nw.
Louisiana	Pike	469	33	46.0	+ 2.7	82	23	17	5	44	0.81	-2.09	0.30	0.5	4	22	7	2	w.
Macon	Macon	875	28	44.3	+ 1.7	84	22	13	5	50	0.69	-2.00	0.21	0.5	5	20	6	5	sw.
Mexico	Andrew	800	38	45.3	+ 3.3	84	22	16	5	43	1.56	-1.23	1.00	0.4	6	21	0	10	w.
Monroe City	Monroe	748	6	..	.....	..	..	..	..	..	1.47	.....	0.97	T.	5	18	9	4	s.
St. Charles	St. Charles	456	39	46.0	+ 1.6	84	23	19	1 [†]	36	0.92	-2.17	0.50	T.	4	7	16	8	s.
St. Louis (1)	St. Louis City	568	53	46.0	+ 1.9	81	23	20	5	30	2.27	-1.11	1.28	0.2	6	13	11	7	U. S. Weather Bureau
St. Louis (2)	do.	578	15	45.1	+ 1.5	82	23	20	5	30	1.84	-1.11	0.96	0.5	5	13	13	5	n.
Shelbina	Shelby	779	34	..	.....	..	..	..	..	..	1.10	-1.75	0.46	2.0	6	..	..	..	St. Louis University
Steffenville	Lewis	650	29	44.6	+ 2.2	88	25	12	5	40	1.25	-1.66	0.50	2.0	5	16	10	5	n.
Unionville	Putnam	1,062	34	43.2	+ 4.6	83	23	10	5	41	2.50	+0.11	1.05	3.5	7	10	12	9	n.
Warrenton	Warren	816	45	46.9	+ 4.7	83	23	16	5	36	0.87	-2.50	0.40	T.	6	11	16	4	nw.
Keokuk, Iowa	Lee, Ia.	614	55	42.6	+ 3.7	81	23	15	5	35	1.89	-0.99	0.52	3.1	7	11	8	12	nw.
Section means and extremes		.....	.....	44.8	+ 2.7	89	22	10	5	59	1.13	-1.70	1.28	1.2	5	15	9	7	nw.
Southeast Lowlands.																			
Campbell	Dunklin	314	2	47.6	.....	82	22	23	5 [†]	42	2.48	.....	1.15	0	8	9	16	6	n.
Cantharville	Penicott	265	31	50.0	- 1.2	80	22 [†]	27	5	36	2.33	-1.67	0.80	0	6	18	5	7	s.
Doniphan	Ripley	344	23	47.6	- 1.8	80	22 [†]	21	2 [†]	53	2.04	-1.55	0.80	0	6	14	11	6	sw.
Jackson	Cape Girardeau	428	36	46.4	- 0.8	84	22	20	1 [†]	44	1.80	-2.54	0.86	3.0	8	7	10	14	n.
Marble Hill	Bollinger	470	32	49.0	+ 1.6	89	23	21	5	45	3.10	-1.08	0.65	0	7	12	8	11	n.
Morehouse	New Madrid	289	26	..	.....	..	..	..	..	..	2.22	-2.28	1.08	T.	9	15	7	9	n.
Poplar Bluff	Butler	329	23	49.4	+ 0.6	84	22	21	2	47	2.07	-2.45	0.88	0	6	13	10	8	w.
Stkeston	Scott	318	22	..	.....	..	..	..	..	..	.....	.....	.....	.....	..	..	..	..	.....
Calro, Ill.	Alexander, Ill.	358	52	47.6	+ 0.4	79	22	24	5	33	1.23	-2.52	0.65	0.1	7	7	8	16	s.
Section means and extremes		.....	.....	48.2	- 0.2	89	23	20	1 [†]	53	2.16	-2.01	1.15	0.4	7	12	9	10	n.
Ozark Plateau.																			
Arcadia	Iron	926	46	44.2	- 0.6	84	22	15	18	55	2.00	-2.07	1.22	5.0	5	25	0	6	nw.
Aurora	Lawrence	1,370	37	48.4	+ 2.8	81	25	19	5	41	2.66	-1.02	1.35	5.5	4	19	7	5	sw.
Birehtree (near)	Shannon	1,000	32	46.9	- 0.5	80	22 [†]	18	5	41	1.93	-2.32	0.87	3.0	6	18	7	6	nw.
Bolivar	Polk	1,071	33	49.4	+ 3.3	82	25	20	5	41	3.56	+0.52	1.56	2.4	6	23	3	5	sw.
Denn	McDonald	1,000	28	50.2	+ 1.3	85	25	20	2	46	2.79	-0.56	1.45	1.5	4	21	3	7	se.
Kidron	Miller	934	31	46.2	+ 2.7	82	22	18	5 [†]	48	0.64	-2.19	0.30	5.3	3	7	18	6	n.
Farmington	St. Francois	918	16	45.8	- 1.1	84	22	19	1 [†]	44	2.03	-1.24	0.86	7.5	7	11	16	4	ne.
Goodland	Iron	1,000	33	45.2	+ 0.3	82	22	13	5	52	2.26	-1.99	1.27	6.0	6	16	10	5	n.
Greenville	Wayne	381	5	45.2	.....	80	22 [†]	18	2 [†]	48	2.07	.....	0.80	T.	7	14	11	6	nw.
Halley	Barry	1,350	2	..	.....	..	..	..	..	..	1.55	.....	0.80	5.0	3	23	5	3	e.
Koshikonong	Oregon	958	26	49.2 ^b	- 0.4	81	22	21	5	40	2.70	-1.11	0.76	T.	6	11 ^b	5 ^b	13 ^b	nw.
Lebanon	Laclede	1,265	39	44.2	- 1.2	79	25	14	5	50	2.56	-0.89	1.60	8.0	6	16	8	7	ne.
Lockwood	Laclede	1,078	21	48.3	+ 0.4	82	28	18	5	48	2.77	+0.31	1.47	8.0	5	18	7	6	se.
Mountain Grove (near)	Wright	1,463	26	46.6	+ 0.6	78	22 [†]	18	5	46	2.37	-1.97	0.68	4.5	8	12	13	6	nw.
Neosho	Newton	1,011	39	48.6	+ 0.4	80	25 [†]	20	5 [†]	45	2.44	-1.03	1.15	3.0	5	20	6	5	sw.
Rolla	Phelps	1,099	27	46.8	+ 1.8	77	22	16	5	38	2.25	-1.34	1.20	14.0	6	21	7	3	w.
Salem (near)	Dent	1,173	23	45.2	- 1.7	78	23	13	17	39	1.80	-1.50	0.75	6.6	6	15	10	6	nw.
Seligman	Barry	1,542	25	50.8 ^p	+ 4.6	..	..	19	5	..	2.49	-1.45	1.06	T.	4	13 [†]	5 [†]	6 [†]	sw.
Seymour (near)	Webster	1,612	21	45.6	+ 0.4	77	25 [†]	16	5	51	1.97	-2.09	0.71	3.0	3	19	6	6	se.
Springfield	Greene	1,324	39	46.8	+ 1.6	78	28	19	5	36	2.36	-1.71	1.37	9.8	10	21	6	4	s.
Section means and extremes		.....	.....	47.0	+ 0.8	85	25	13	5 [†]	55	2.21	-1.31	1.60	4.9	6	17	8	6	nw.
Southwest Plain.																			
Amoret	Bates	831	20	..	.....	..	..	..	..	..	.....	.....	.....	.....	..	..	..	..	.....
Appleton City	St. Clair	853	33	48.6	+ 4.0	83	25	19	5	44	1.15	-1.92	1.00	1.6	4	9	18	4	sw.
Centerville	Johnson	872	40	48.8	+ 5.2	82	25	17	5	44	0.57	-1.97	0.32	0.5	2	13 [†]	9 [†]	6 [†]	sw.
Clinton	Henry	765	34	49.2	+ 4.9	80	25	20	5	36	0.79	-2.07	0.65	2.0	3	12	15	4	sw.
Farringtonville	Cass	904	50	46.0	+ 5.1	86	25	15	5	55	0.34	-2.35	0.12	0.8	5	9	4	18	nw.
Lamar	Barren	980	40	47.2	+ 1.0	83	25	21	5 [†]	49	2.38	-0.52	0.93	6.0	6	16	8	7	sw.
Lamonte	Pettis	867	26	47.2	+ 3.5	86	25	17	5	47	0.11	-2.49	0.05	1.0	4	20	8	3	se.
Marshall	Saline	779	38	48.4 ^o	+ 5.9	87	22	15	5	48	0.42	-2.29	0.27	0.5	3	15 ^o	6 ^o	7 ^o	nw.
Nevada	Vernon	892	34	49.4	+ 5.1	84	25	20	5	40	1.65	-1.34	1.00	7.0	4	16	10	5	s.
Warsaw	Benton	687	27	48.6	+ 1.7	82	22 [†]	15	5	48	1.05	-2.18	0.80	1.5	2	12	11	8	w.
Section means and extremes		.....	.....	48.2	+ 4.0	87	22	15	5	55	0.94	-1.90	1.00	2.3	4	14	10	7	sw.
Northwest Plateau.																			
Bethany	Harrison	916	35	44.9	+ 4.9	85	23	12	5	49	1.15	-1.15	0.50	2.5	7	16	6	9	nw.
Chillicothe	Livingston	779	18	44.6	+ 3.0	87	22	13	5	48	0.96	-1.82	0.50	2.0	5	18	8	5	w.
Conception	Nodaway	980	38	44.5	+ 5.0	85	22	12	5	45	0.62	-1.13	0.49	1.0	3	8	15	8	sw.
Edgerton	Platte	856	7																

Daily Precipitation for March, 1928

Stations.	Drainage-basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Northeast Plain.																																			
Boonville	Missouri	.14							.06					.03												.02	.90		.02			.03		1.20	
Brunswick	Grand								.07					.02													.03				.05		0.17		
Clifton Hill	Chariton								.15																	.18	.05					.09		0.47	
Columbia***	Missouri						T.		.07			T.	.48													.02	.08	.01				.03	T.	0.69	
Downing	Mississippi								.60					.10													.70	.07			.20		1.67		
Fayette	Missouri								.19																	.31	.13					.10		0.73	
Fulton	do	.16					.03		.07					.33			T.										.07	.01				.03		0.70	
Gorin	Mississippi								.56				.18	.08													.22	.07	.05			.18		1.27	
Hannibal***	do								.17			.11	.21	.07												.11	.15	.03				.04		0.93	
Hermann	Missouri	.23							.30			.02		.23			.01										.03		.01		.07	.06		0.96	
Jefferson City	do	.20							.06					.08			.20															.01		0.55	
Kirksville	Mississippi								.42																		.40				T.	.15		0.97	
Louisiana	do								.20					.26													T.	.30	T.			.05		0.81	
Macou	Chariton								.21			.09														.11	.13		T.			.15		0.69	
Mexico	Mississippi								.15			.02		.35												.02	.98					.04		1.56	
Milan	Grand										.20																.58	.10	.08			.30		1.26	
Monroe City	Mississippi								.24																	.15	.97	.05			T.	.06		1.47	
Pacific	Meramec	.58							.33					T.		.12	.09											T.	.02		.30	.09		1.53	
St. Charles	Missouri								.07			.05		.50			T.										.30	T.					0.92		
St. Louis (1)***	Mississippi								.57			T.		.38		T.	.02										.01	.01			1.28	T.	T.	2.27	
St. Louis (2)*	do								.41			T.		.38		T.	.05										.04	T.			.96		1.84		
Shelbina	do								.22		.11															.15	.46					.14		1.10	
Steffenville	do								.10			.05		T.		.50											T.	.45	T.			.15		1.25	
Union	Meramec	.54							.44			.05		.50		.20	.02											.45			.03	.34	.08	2.15	
Unionville	Chariton				.10				.55					.45													.80	.25			.08	.27		2.50	
Warrenton	Mississippi								.40			.05		.12			T.										.10	.15	T.		.05	T.		0.87	
Keokuk, Ia.***	do								.46			.20	T.													.47	.05	.02			.13	.06		1.39	
Southeast Lowlands																																			
Campbell	St. Francis			.14	.03				.57							1.15	.37													.07	.10	.05	2.48		
Cape Girardeau	Mississippi	.45		.12					.38				.39	.02		.06	.50	.01									.06	.02				.05		2.06	
Caruthersville	do			.29					.80	.25						.70	.22										.07							2.33	
Dexter	St. Francis				.08		T.									T.	.94											T.				.13		1.15	
Douglas	Black			.22					.80			T.				.82	.15												.02			.03		2.04	
Jackson	Mississippi								.35	.06		.13	.02			.86	.26									.03					.09		1.80		
Marble Hill	Mississippi								.60	.30		.60				.65	.45									.20					.30		3.10		
Morehouse	do				.05		T.		.50	.09			.09	.03		1.08	.27										T.				.04	.07		2.22	
New Madrid	do	.20			.35				.85							.03	1.40											.03	.10			.05		3.01	
Poplar Bluff	Black	.10			.20				.63							.23	.88														.08			2.07	
Stikeston	Mississippi																																		
Union, Ill.***	do			.02					.41		.05			.01		.62	.09											T.				.03	T.		1.23
Ozark Plateau.																																			
Arcadia	St. Francis	.27			.03				.21		T.				T.	T.	1.22	T.	T.												T.	.27		2.00	
Aurora	Neosho			T.					.35					.06	T.	1.35	.90														T.		2.66		
Birchtree (near)	Black				.28				.16							.87	.10														.10		1.93		
Bolivar	Osage			.95					.64						T.	T.	1.56	.25													.05	T.		3.56	
Caplinger Mills	Osage			.12			T.		.14						T.	T.	1.77	.59											.02		.03	T.		2.67	
Dean	Neosho				.14				.76							1.45	.44																	2.79	
Eldon	Missouri	.18							.16							.30																		0.64	
Farmington	St. Francis							.08	T.					.05		.63	.32									.06		T.			.86	.03		2.03	
Fredericktown	do				.06		.20					.43		.32		.35	1.20																T.	3.35	
Galeville	White								.12		.52					.55	.92																	1.99	
Goodland	Black				.08				.12							.40	1.27														.03	.36		2.26	
Greenville	St. Francis				.06				.57	.10		.07				.80	.45														.02	T.		2.07	
Hailey	White						.80									.50	.25																	1.55	
Koshkonong	Black			.17	.31		T.		.76							.65	.44												.37					2.70	
Lebanon	Osage	.17		.14					.40				.09			T.	1.60														.16		2.56		
Lockwood	do			.28					.20							1.47	.40														.42			2.77	
Mountain Grove	White	.25		.45					.36							.51	.68																	2.37	
Neosho	Neosho			.28					.70						T.	1.15	.26													.02		.05	.05	2.44	
Owensville	Gasconade	.55							.98					.12			T.															.31		1.96	
Rolla	Meramec			.04					.44				.18			.25	1.20														.14			2.25	
Salem (near)	do			T.	.14				.12	T.						.75	.30															.28		1.80	
Seligman																																			

Daily Temperatures for March, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
Northeast Plain.																																	
Brunswick §§.....	Maximum...	47	56	48	48	40	53	64	57	52	68	69	76	52	58	41	47	52	46	47	54	76	89	84	77	86	52	48	70	36	47	70	58.4
.....	Minimum...	21	25	25	30	15	16	29	33	37	30	34	43	35	28	30	31	22	26	26	22	29	35	60	55	51	48	28	29	34	26	28	31.3
Columbia.....	Maximum...	44	54	45	49	39	54	62	57	49	64	67	76	52	54	44	43	44	44	47	51	72	83	81	72	80	65	47	70	44	47	67	57.0
.....	Minimum...	23	28	29	24	18	32	38	43	36	32	45	49	38	34	34	31	24	27	26	29	31	55	55	56	56	34	29	40	29	27	31	34.9
Fayette.....	Maximum...	49	57	48	50	42	55	63	54	52	67	71	78	55	60	39	46	57	47	50	55	74	89	83	75	83	55	45	42	46	49	57.8	
.....	Minimum...	19	22	22	27	14	17	30	35	35	29	33	39	35	24	33	29	17	23	21	22	21	30	41	50	50	53	26	29	33	23	24	29.2
Hannibal.....	Maximum...	44	53	46	45	35	49	58	52	45	57	65	74	52	53	39	40	42	40	46	47	68	80	82	67	78	65	44	50	40	41	64	54.0
.....	Minimum...	25	29	28	22	17	31	35	42	32	30	40	47	34	31	34	31	25	24	30	32	31	55	52	55	55	33	28	38	29	28	30	34.0
Jefferson City §§.....	Maximum...	46	57	47	52	40	55	63	58	51	66	69	77	53	58	40	43	45	43	50	55	73	85	83	75	83	55	50	72	40	50	70	58.5
.....	Minimum...	23	27	29	29	17	31	34	40	37	31	41	49	40	32	37	30	24	30	32	31	28	40	54	52	60	60	30	31	37	28	31	35.0
Kirksville.....	Maximum...	44	53	49	44	36	50	56	52	52	63	65	69	64	54	45	46	47	44	...	...	23	36	42	46	47	36	23	34	30	23	29	29.9
.....	Minimum...	21	25	22	26	12	29	31	37	34	28	34	41	34	30	29	23	21	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Louisiana.....	Maximum...	45	50	52	45	40	45	62	61	50	55	63	73	72	54	54	55	46	45	48	48	67	78	82	80	78	76	67	58	60	55	62	58.9
.....	Minimum...	25	33	26	30	17	28	34	41	37	27	37	42	38	26	32	32	20	22	25	28	54	38	57	53	43	28	36	36	30	25	32.1	
Macon §§.....	Maximum...	47	55	48	50	38	56	63	53	51	67	67	78	52	57	40	42	47	45	52	53	71	84	83	66	82	62	48	64	39	48	67	57.0
.....	Minimum...	20	25	24	30	13	18	31	38	34	28	36	45	34	31	31	28	22	22	23	30	31	54	52	50	45	24	30	31	23	29	31.2	
Mexico §§.....	Maximum...	46	55	49	48	38	51	62	55	52	63	69	76	55	56	40	42	47	45	52	53	71	84	83	66	82	62	48	64	39	48	67	57.0
.....	Minimum...	24	28	27	35	16	18	32	38	36	30	42	44	37	30	32	30	23	23	28	33	29	41	52	54	53	56	29	30	35	27	30	33.6
St. Louis(1).....	Maximum...	45	54	45	49	35	50	61	54	51	52	60	70	63	56	45	40	42	41	51	49	64	81	81	71	75	64	46	66	49	48	63	55.7
.....	Minimum...	27	31	32	25	20	30	39	44	35	34	37	46	40	38	35	29	27	28	33	37	53	57	58	56	35	31	39	31	31	33	36.4	
Unionville.....	Maximum...	44	55	52	42	37	54	60	55	50	60	64	68	64	52	47	47	48	45	44	50	73	83	83	78	80	71	44	50	44	44	63	56.5
.....	Minimum...	20	25	20	25	10	30	30	32	33	27	35	44	32	26	27	26	20	22	22	26	32	46	46	56	45	36	22	32	27	22	30	29.9
Warrenton.....	Maximum...	43	53	51	49	38	52	63	61	54	58	66	75	73	55	53	42	43	44	48	51	68	81	83	80	81	76	51	67	67	67	65	50.3
.....	Minimum...	22	26	28	34	16	27	38	45	36	29	29	45	39	33	35	28	23	21	28	32	32	53	52	53	54	45	29	35	34	28	29	31.5
Southeast Lowlands.																																	
Campbell.....	Maximum...	49	58	53	55	52	53	67	55	64	66	71	71	66	60	53	37	41	40	53	57	62	82	80	71	70	79	56	75	60	57	61	60.5
.....	Minimum...	25	26	28	29	23	29	27	28	43	32	36	46	55	37	32	32	25	23	28	33	28	40	43	54	54	54	32	36	38	34	29	34.8
Caruthersville.....	Maximum...	44	52	52	50	50	47	61	61	55	55	69	69	68	60	55	40	36	46	49	54	60	80	80	76	67	77	72	75	75	64	61	60.1
.....	Minimum...	31	33	36	42	27	32	42	48	38	38	38	38	38	56	43	39	35	32	29	30	39	34	41	51	54	55	56	39	40	64	33	32.9
Doniphan.....	Maximum...	48	57	53	55	56	52	68	58	64	70	72	72	67	60	50	37	45	50	51	60	68	80	80	68	72	74	56	74	71	52	64	61.4
.....	Minimum...	23	21	25	38	30	32	28	42	42	38	30	40	40	40	32	31	27	21	23	25	25	27	40	55	55	53	36	42	41	34	24	23.9
Jackson.....	Maximum...	47	55	58	56	50	51	65	62	54	56	71	71	65	62	58	45	39	42	50	57	62	84	81	71	71	66	72	52	72	53	69	60.0
.....	Minimum...	20	22	27	36	20	20	31	44	38	27	29	43	51	32	30	29	23	21	24	28	24	40	42	54	55	49	31	33	38	20	32.7	
Poplar Bluff.....	Maximum...	49	67	53	57	48	55	69	57	69	61	78	73	77	60	54	38	45	55	55	61	68	84	82	66	75	75	55	76	70	48	63	62.8
.....	Minimum...	24	21	26	39	22	32	27	47	41	34	31	43	57	39	33	38	27	23	27	30	27	41	46	55	53	53	37	39	45	85	26	35.9
Sikeston.....	Maximum...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	Minimum...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cairo, Ill.....	Maximum...	43	55	47	53	40	50	63	60	56	54	69	69	65	56	50	36	39	42	49	51	58	79	79	67	68	75	47	72	71	44	59	57.0
.....	Minimum...	29	31	37	32	24	30	36	49	39	35	38	51	46	39	33	33	29	29	31	37	35	47	54	56	50	43	34	39	39	34	33	38.1
Ozark Plateau.																																	
Arcadia §§.....	Maximum...	44	55	46	52	43	51	66	55	54	60	72	70	63	60	36	37	40	43	51	54	68	84	79	70	75	66	53	71	56	46	62	57.5
.....	Minimum...	22	22	25	33	18	21	29	36	39	26	28	36	46	27	30	27	21	15	20	27	23	29	43	54	54	53	31	30	39	29	24	30.9
Aurora.....	Maximum...	44	53	49	51	47	54	64	59	57	69	69	77	71	52	45	37	44	46	46	56	71	78	77	78	81	78	58	79	73	45	68	60.5
.....	Minimum...	26	28	37	37	19	32	31	46	37	39	43	48	41	37	32	26	22	28	29	36	31	50	56	51	51	29	42	32	28	30	36.4	
Birchtree.....	Maximum...	48	55	48	53	46	53	66	58	59	61	72	71	66	57	51	34	42	47	43	57	67	80</										

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., APRIL, 1928. No. 4.

GENERAL SUMMARY.

While the first four days of April, 1928, were as mild as summer in all Missouri there followed a sharp reaction to below normal temperatures for April that persisted practically nearly the remainder of the month beginning about the 7th.

The most outstanding features were the general freezes on the 8th and 9th, and again on the 13th, 14th, and 15th, which practically killed the fruit crop, save perhaps late apples, some peaches in the southern parts, and berries in the commercial fields of the Ozark region. The month also was remarkably free from severe wind, hail, and excessive rainstorms.

During April there was quite plentiful precipitation during the first half of the month, coming in two or three spells at regular intervals. After the middle of the month there was very little rain over the northern two-thirds of the State, and no general heavy rains. The Ozark region and the southeastern lowlands, however, continued to receive quite ample rainfall for all immediate needs.

Due to cool weather generally and lack of moisture over more than the northern half of the State vegetation made little advance, the early fruit and gardens being badly affected by the mid-month freeze. Oats, alfalfa, and clover also were damaged somewhat. Winter wheat made little advance. More than one-fourth of the crop had been winter killed, and there was not enough of warm spring rain to bring the damaged part back to life if it had any. A large amount of plowing was done for corn, and about one-third had been planted when the month ended. In some localities in the central and northwestern counties the ground was dry to depths of 18 inches, rather a remarkable condition for the spring time of year.

TEMPERATURE.

The mean temperature for the State, as determined from the records of 67 stations, was 51.6°, 3.5° below the normal and more than 6 degrees cooler than April, 1927. The first four days of the month were abnormally warm, but the remainder of the month was persistently cool, save the last two days when temperatures were again above the normal. Summer warmth obtained on the 1st, and 2d, afternoon temperatures ranging well into the 80s. A cold spell with frost and freezing temperature persisted more or less from about the 7th to the 15th. There was no general freeze after the 15th, but there were a few local frosts and freezes later in the month. The extremes of temperature, 88° and 16°, are not unusual for April.

PRECIPITATION.

The monthly precipitation for the State, based upon the records of 98 stations, was 4.79 inches, or 1.06 inches more than the 56 years' average. The monthly distribution was markedly uneven, being excessive in the southeastern lowlands and most of the Ozark Plateau, and deficient generally elsewhere, the deficiency averaging more than one inch in the northwest plateau. Most of the rain of the northern and southern sections fell during a four day spell from the 4th to the 7th, the last three weeks, save a shower occasionally here and there, were very dry. In the southern-third of the State there were several rainy periods at quite regular intervals during the last as well as the first part of the month. The monthly total at some of the southern stations exceeded 9 inches, while at some northern stations there was less than two inches. The greatest 24-hour amount was 3.78 inches, at Seymour on the 5th.

During the coldest spell snow fell over the northern half of the State. Locally amounts were from one to two inches deep but soon melted.

MISCELLANEOUS PHENOMENA.

Earthquakes.—Tremors felt at Jackson and New Madrid at about 9 a. m. the 15th.

Fogs, dense.—Kansas City on the 21st, and Salem on the 21st, and 23d.

Frosts, light.—8th, 10th, 12th, 19th, 23d, 24th, 26th, 27th, and 28th. Heavy.—25th, 27th, 28th, and 29th. Killing.—7th, 8th, 9th, 14th, 15th, and 16th.

Hail.—Light hail, no damage, 5th, 19th, 20th, and 26th.

Halos, lunar.—1st. Solar.—1st, 2d, 7th, 9th, 11th, 12th, 15th, 16th, 18th, 19th, 20th, 25th, 26th, 29th, and 30th.

Sleet at a few stations on the 6th, 19th, 20th, 25th, and 26th.

Thunderstorms.—4th, 5th, 6th, 11th, 13th, 14th, 18th, 19th, 20th, 21st, and 24th.

Wind.—Strong winds, but without damage, were more or less general on the 1st, 2d, 3d, 4th, 13th, and 29th. At Oregon, Holt County, a squall took the top off the Forbis School house. Damage about \$200. At Tarkio Atchison County there was almost a tornado on the 4th. No damage or loss reported.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine. Total hours.	Percentage of possible.	Total movement, miles.	Wind.			
		7 a. m.	7 p. m.				Average hourly velocity.	Miles per hour.	Direction.	Date.
Columbia.....	29.95	70	74	246	62	6,704	9.3	31	nw.	14
Hannibal.....	29.93	69	73	306	77	7,087	9.8	33	nw.	14
Kansas City.....	29.92	67	49	306	77	8,325	11.6	42	nw.	13
St. Joseph.....	29.92	68	44	248	62	7,424	10.3	38	nw.	13
St. Louis.....	29.94	65	210	53	9,372	13.0	47	sw.	6	
Springfield.....	29.93	53	239	61	7,886	11.0	36	s.	13	
Cairo, Ill.....	29.97	71	57	...	7,867	10.9	33	sw.	29	
Keokuk, Iowa.....	29.94	71	52	257	65	6,276	8.7	34	w.	14

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR APRIL.

Year.	Temperature.				Precipitation.			Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelting.	With .01 inch or more.	Clear.	Partly cloudy.
1888.....	57.9	+2.8	91	20	1.83	-1.89	...	...	5	...	...
1889.....	55.7	+0.6	90	26	2.52	-1.20	...	...	8	...	...
1890.....	56.2	+1.1	93	24	3.17	-0.55	...	...	8	...	...
1891.....	56.8	+1.7	93	15	3.90	+0.18	...	...	9	...	...
1892.....	53.1	-2.0	88	26	5.66	+1.94	4.25	...	11	9	8
1893.....	53.9	-1.2	95	19	7.84	+4.12	5.50	...	12	8	9
1894.....	56.1	+1.0	93	20	3.17	-0.55	2.49	T.	8	12	10
1895.....	57.9	+2.8	100	24	1.95	-1.77	2.88	T.	7	14	8
1896.....	61.9	+6.8	92	17	3.51	+0.21	3.00	0.0	9	11	12
1897.....	54.4	-0.7	88	21	4.55	+0.83	3.50	T.	10	10	11
1898.....	52.5	-2.6	90	14	3.65	-0.07	3.25	T.	10	12	9
1899.....	54.0	-1.1	96	6	3.70	-0.02	3.76	3.8	8	12	9
1900.....	56.7	+1.6	89	21	3.36	-0.36	3.82	0.7	9	11	10
1901.....	53.3	-1.8	94	24	2.85	-0.87	2.23	1.8	8	14	7
1902.....	53.9	-1.2	95	19	2.66	-1.06	4.35	T.	11	13	11
1903.....	55.9	+0.8	91	26	3.54	-0.18	4.06	1.2	9	11	10
1904.....	49.0	-6.1	84	19	5.75	+2.03	6.10	2.7	9	15	6
1905.....	54.9	-0.2	92	20	3.19	-0.53	4.00	0.3	6	14	8
1906.....	59.5	+4.1	93	22	2.24	-1.41	2.45	0.0	8	17	7
1907.....	48.7	-6.4	89	16	3.48	-0.29	2.75	T.	8	11	8
1908.....	56.6	+1.5	90	18	5.30	+1.58	3.30	T.	11	11	8
1909.....	54.8	-0.3	93	19	4.35	+0.63	3.80	T.	8	13	9
1910.....	54.8	-0.3	95	21	3.51	-0.21	3.50	0.9	11	12	7
1911.....	53.5	-1.6	89	20	4.99	+1.27	4.27	T.	10	12	8
1912.....	56.0	+0.9	97	24	5.98	+2.26	4.50	0.7	10	13	7
1913.....	56.2	+1.2	94	25	3.33	-0.45	3.90	T.	7	16	5
1914.....	55.2	+0.1	91	18	3.14	-0.74	3.00	T.	8	12	7
1915.....	61.9	+6.5	96	18	2.03	-1.82	2.08	T.	7	16	8
1916.....	53.5	-1.8	93	21	3.23	-0.69	2.35	1.9	10	11	8
1917.....	53.2	-2.3	89	19	5.97	+2.02	4.80	1.2	12	12	6
1918.....	50.8	-4.1	93	19	5.10	+1.24	3.50	0.9	11	12	6
1919.....	55.3	+0.3	94	20	3.01	-0.64	3.25	T.	9	12	7
1920.....	50.2	-4.7	89	4	3.95	+0.15	2.98	4.8	11	11	7
1921.....	56.0	+0.9	91	19	5.37	+1.52	4.20	1.1	10	13	7
1922.....	57.3	+1.9	91	24	6.21	+2.42	5.49	T.	11	13	6
1923.....	54.2	-0.6	91	16	3.12	-0.74	2.50	0.4	8	14	8
1924.....	56.6	+1.5	95	11	2.07	-1.66	2.35	T.	6	14	8
1925.....	61.0	+5.9	92	24	4.11	+0.38	3.51	0.0	10	12	9
1926.....	49.9	-5.2	91	11	2.46	-1.27	3.19	2.4	8	14	6
1927.....	57.7	+2.6	94	18	8.46	+4.73	4.85	T.	14	10	7
1928.....	51.6	-3.5	88	16	4.79	+1.06	3.78	0.2	8	13	7

Climatological Data for April, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observer.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., at least or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain.																				
Brunswick	Chariton	652	48	49.7	-4.4	83	1	22	15	47	2.47	-1.01	1.15	0.8	7	15	3	12	se.	O. K. Benecke
Clifton Hill	Randolph	731	28	49.7	-3.8	83	29	20	15	30	2.50	-1.86	1.00	0.5	9	13	10	7	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	51.2	-3.7	82	1	23	9	36	2.89	-0.81	1.40	T.	7	11	9	10	nw.	U. S. Weather Bureau
Downing	Schuyler	876	6	48.6	.....	81	2	18	9	38	3.25	-0.50	1.57	2.0	8	15	5	10	w.	James Taylor
Fayette	Howard	661	47	49.6	-4.7	81	29	20	9†	48	3.93	+0.39	2.09	1.0	6	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	50.8	-3.5	81	2†	23	9	42	4.71	+0.38	2.30	T.	8	10	14	6	.....	Chamber of Commerce
Gorin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	2.53	-1.47	1.14	0.5	6	6	8	16	nw.	J. W. Pulliam
Hannibal	Marion	534	35	50.0	-3.4	82	2	25	9	38	2.61	-0.64	1.00	0.4	9	12	7	11	w.	U. S. Weather Bureau
Jefferson City	Cole	557	39	52.0	-4.1	87	2	23	15	42	4.60	+1.06	2.20	0	8	17	4	9	n.	Miss Emma Swift
Kirksville	Adair	969	38	48.8	-2.9	79	1†	18	15	37	2.77	-0.87	1.38	1.0	6	16	5	9	nw.	Prof. J. S. Stokes
Louisiana	Pike	469	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Farrell
Macon	Macon	875	28	49.3	-3.8	82	1†	19	15	43	2.64	-0.55	1.35	T.	6	13	10	7	nw.	W. C. Brown
Mexico	Audrain	800	38	50.2	-3.5	83	1†	23	9†	46	2.73	-0.93	0.90	0.5	7	19	0	11	se.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	2.50	.....	1.15	0	6	20	3	7	se.	J. S. Conway
St. Charles	St. Charles	456	39	52.3	-3.1	82	29	24	9	39	4.94	+1.26	2.34	T.	8	13	5	12	s.	L. C. Faeger
St. Louis (1)	St. Louis City	568	53	52.4	-3.7	81	29	27	15	32	3.02	-0.79	1.32	T.	8	11	8	11	sw.	U. S. Weather Bureau
St. Louis (2)	.....do.....	578	15	51.5	-3.7	81	29	27	15	32	3.08	-0.93	1.08	T.	8	12	10	8	se.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	2.86	-0.67	1.25	2.0	7	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	49.4	-3.5	80	2	20	15	36	3.98	+0.37	1.85	2.5	7	16	9	5	n.	Frank Hall
Unionville	Putnam	1,062	34	48.0	-2.7	78	1	16	15	38	3.60	-0.21	2.55	2.0	6	11	9	10	n.	Geo. W. Davis
Warrenton	Warren	816	45	52.2	-2.3	81	1†	23	15	43	4.88	+0.57	2.85	T.	6	12	11	7	nw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	48.7	-3.4	82	2	23	9	34	2.79	-0.20	1.12	2.3	11	10	5	15	n.	U. S. Weather Bureau
Section means and extremes				50.2	-3.5	87	2	16	15	48	3.30	-0.37	2.85	0.7	7	13	7	10	nw.	
Southeast Lowlands.																				
Campbell	Dunklin	314	2	54.8	.....	78	1	27	16	35	6.60	.....	2.58	0	10	12	7	11	n.	Jeff. King
Cynthiansville	Penitencot	265	31	56.7	-3.5	78	23	33	15	32	4.81	+0.69	2.80	0	7	14	2	14	s.	Sam Smith
Doniphan	Ripley	314	23	54.0	-4.0	80	1	25	15	40	7.44	+2.07	2.00	0	10	16	5	9	sw.	W. W. Martin
Jackson	Cape Girardenn.	428	36	52.4	-4.5	79	1	23	10	43	6.42	+1.95	2.50	0	11	6	9	15	n.	John G. Putz
Marble Hill	Bollinger	470	32	54.6	-2.1	82	2	24	10	39	7.46	+3.02	3.10	0	10	10	4	16	w.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	7.51	+3.25	2.97	0	14	14	9	7	sw.	John A. Spence
Poplar Bluff	Butler	329	23	54.5	-4.7	79	1†	27	10†	38	7.22	+2.75	2.80	0	9	14	6	10	e.	J. H. Wolpers
Stikeston	Scott	318	22	55.0	-2.9	79	24	30	10†	34	6.71	+2.45	2.53	0	9	7	14	8	.....	Carlos W. McKinney
Cairo, Ill.	Alexander, Ill.	358	52	54.0	-4.1	77	2	32	15	30	5.76	+2.04	2.47	0	13	8	7	15	s.	U. S. Weather Bureau
Section means and extremes				54.5	-3.7	82	2	23	10	43	6.66	+2.28	3.10	0	10	11	7	12	sw.	
Ozark Plateau.																				
Arcadia	Iron	926	46	49.8	-5.5	79	1	23	10†	48	6.22	+1.60	2.04	T.	10	17	1	12	s.	Arendia College
Aurora	Lawrence	1,370	37	53.2	-2.5	81	1	23	15	36	6.68	+2.33	1.85	0	9	10	11	9	sw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	53.0	-3.8	80	1	25	10†	41	7.30	+2.58	1.70	0	9	16	3	11	sw.	V. H. Kirkendall
Bolivar	Polk	1,071	33	53.6	-2.5	82	1	25	9†	37	5.69	+1.70	1.36	0	9	20	2	8	w.	Southwest Baptist College
Dean	McDonald	1,000	28	55.8	-1.5	84	1	23	15	45	9.14	+5.10	2.65	0	10	22	1	7	se.	H. E. Dean
Eldon	Miller	934	31	50.6	-4.8	82	1	24	15	51	5.07	+0.61	2.30	T.	8	7	14	9	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	51.5	-5.4	81	1	24	9†	39	5.07	+1.11	1.48	0	9	9	10	11	sw.	Robert Forsyth
Goodland	Iron	1,000	33	51.4	-3.2	80	1†	20	10†	48	5.51	+0.42	2.10	0	8	13	5	12	s.	F. M. Adams
Greenville	Wayne	381	5	51.6	.....	81	1†	22	10†	46	7.99	.....	3.17	0	12	12	6	12	s.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	6.57	.....	2.23	0	6	18	3	9	sw.	A. W. Madison
Koshkonong	Oregon	958	26	53.5	-4.3	81	1	28	15	36	9.43	+4.46	2.81	0	11	12	5	13	sw.	R. M. Hitt
Lebanon	Laclede	1,265	39	48.4	-7.3	80	1	20	10	48	8.11	+3.93	2.24	0	11	13	7	10	e.	Mrs. Lou Mulcare
Lockwood	Bude	1,078	21	52.0	-4.0	82	1	24	15	39	6.62	+2.96	1.43	T.	8	17	3	10	sw.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	51.3	-2.9	80	1	22	9	39	8.61	+3.83	2.03	0	11	14	7	9	nw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	57.8	-0.2	79	29†	21	15	41	5.30	+1.18	1.20	0	10	17	5	8	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	52.1	-2.9	78	1	23	9†	34	7.28	+2.62	1.55	0.5	9	17	5	8	w.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	50.9	-4.7	78	1†	22	9	35	6.43	+1.83	2.98	T.	10	12	7	11	s.	A. C. Leach
Seligman	Barry	1,542	25	53.6	-2.2	79	1	24	15	34	7.17	+3.24	3.00	0	9	15	6	9	sw.	Floyd E. Fawver
Seymour (near)	Webster	1,612	21	50.6	-4.8	80	1	23	15	42	9.34	+5.38	3.78	0	9	16	4	10	s.	Ira H. Hailey
Springfield	Greene	1,324	39	51.8	-4.2	80	1	25	15	31	6.62	+2.76	2.18	T.	9	19	2	9	s.	U. S. Weather Bureau
Section means and extremes				52.2	-3.7	84	1	20	10†	51	7.01	+2.65	3.78	T.	9	15	5	10	sw.	
Southwest Plain.																				
Amoret	Bates	831	20	.....	.....	.....	.....	.....	.....	.....	.....	+0.92	2.32	T.	.....	.....	.....	.....	.....	Andrew Rood
Appleton City	St. Clair	853	33	52.4	-3.4	83	1	24	9	39	5.18	-1.38	0.80	T.	8	11	14	5	sw.	W. G. Bigelow
Centerville	Johnson	872	40	51.0	-5.1	83	29	23	15	41	1.82	-1.38	0.80	T.	6	15	8	7	se.	E. A. Markey
Clinton	Henry	765	34	51.3	-4.4	77	3	22	10	35	5.86	+1.82	2.63	0	7	10	11	6	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	50.0	-3.8	86	1	22	9†	54	2.86	-0.53	0.87	0	7	6	5	19	s.	John H. Patterson
Lamar	Barton	980	40	51.2	-5.4	82	1	25	9	42	4.85	+0.70	0.82	0	13	16	4	10	sw.	Jesse A. Mann
Lamotte	Pettis	867	26	50.4	-4.7	85	1†	22	9	46	2.66	-1.11	1.38	0	6	20	6	4	sw.	J. E. Wheeler
Marshall	Saline	779	38	52.5	-1.9	85	1†	20	9†	44	2.40	-1.29	0.90	T.	7	14	3	13	sw.	Dr. W. H. Black
Nevada	Vernon	802	34	53.2	-1.9	81	1†	25	15	34	5.86	+2.07	3.05	0	6	15	4	11	s.	George A. Kanpp
Warsaw	Behton	687	27	54.2	-1.6	84	1	23	9	38	4.50	+0.28	1.60	0	8	13	8	9	w.	Everett Martin
Section means and extremes				51.8	-3.6	86	1	20	9†	54	4.00	+0.16	3.05	T.	8	13	7	10	sw.	
Northwest Plateau.																				
Bethany	Harrison	916	35	49.9	-1.3	80	1†	18	9†	44	1.66	-1.56	0.73	T.	5	11	10	9	nw.	M. H. Moulton
Chillicothe	Livingston	779	18	49.0	-4.3	85	1	20	15	54	2.56	-1.88	0.96	0.8						

Daily Precipitation for April, 1928																																		
Stations.	Drainage-basins.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Northeast Plain.																																		
Boonville|||	Missouri				.77	1.35	.20					.03	.01	.83								.08											3.27	
Bruswick|||	Grand				.11	1.15	.15					.12		.80								.08											2.47	
Clifton Hill	Chariton				.11	1.00	.32	.15				.08	.73									.02	.05			.04							2.50	
Columbia***	Missouri				.38	1.14	.28	.01				.04	.97	T.								.07			T.								2.89	
Downing	Mississippi				.10	1.57	.46	.10				.22	.50	T.					.02				.28										3.25	
Fayette|||	Missouri				.20	.09	.54	.10				.13	.93								.14												3.93	
Fulton	do				.03	2.30	.88	.15	T.				.17	.76								.38	.04										4.71	
Gorin	Mississippi				.11	.14	.39	.05				.05	.63									.37											2.53	
Hannibal***	do				.20	.96	.41	.08				.10	.68	T.		.01				T.	.05	.12			T.								2.61	
Hermann|||	Missouri				.23	1.26	.10					.04	.42									.26	.16										4.59	
Jefferson City|||	do				.22	1.10	.10					.02	.05	.53								.45	.15										4.60	
Kirksville	Mississippi				.13	.40	.21						.06	.52									.20										2.77	
Louisiana	do																																2.64	
Macon |||	Chariton				.50	1.35	.20					.06		.51								.02											2.74	
Mexico |||	Mississippi				.90	.74	.10					.05		.85					.05														2.20	
Milan|||	Grand				.25	1.12	.23					.10	.25									.25											2.50	
Monroe City	Mississippi				.05	1.15	.29	.09				T.		.80							T.	.12											4.15	
Pacific|||	Meramec				.16	1.20	.06						.03		.09							.80	.32	.05									4.94	
St. Charles	Missouri	.21			.24	2.34	.63	T.					.04							.01		1.35	.12										3.02	
St. Louis (1)***	Mississippi		T.		.62	1.17	.10	T.				T.	.01	.13				T.	T.		.30	.46	.23		T.								3.08	
St. Louis (2)*	do				.70	1.08	.05	T.					.01	.20					T.			.37	.42	.25		T.							2.86	
Shelbina |||	do				.30	1.25	.24	.02					.03		.72							.30											3.98	
Stellenville	do				.43	1.85	.40	.20				T.	.15	.60					T.			.35											5.57	
Union|||	Meramec				.12	2.60	1.34	.16					.05		.16							.75	.32	.07									8.60	
Unionville	Chariton				.19	.95	.60	.25				T.		.50	.05							.25											4.88	
Warrenton	Mississippi				.45	2.85	.86	T.					T.	.45	T.							.24	.03										2.79	
Keokuk, Ia. ***	do				.14	.81	.47	.14					.08		.58	.05		.02	.01			.16	.33		T.									
Southeast Lowlands																																		
Campbell|||	St. Francis				.36	.05	2.58	.06														.42	2.45	.13	.02	.01							6.60	
Cape Girardeau|||	Mississippi				.28	.22	1.72	.28						.42								.30	2.96	.12	.21		.03	.35					6.89	
Camthersville |||	do				.19			.13	2.80					.43						1.00			.15				.11						4.81	
Dexter |||	St. Francis				.20	.16	.44							1.59								.21	3.38			T.		.31					8.29	
Doniphan	Black				.65	2.00	1.53						.65									.70	1.23	.10	.10	T.	.26				.22		7.44	
Jackson	Mississippi				.43	.21	1.47						.12	.37						.23	.32	2.50	.43			.01	.33						6.42	
Murhe Hill.	Mississippi				.45	.50	1.56						.20	.25						.25	.30	3.10	.45			.40							7.46	
Morehouse	do				.28	.20	2.29						.04	.96						.06	.32	2.97	.04	.04		.02	.04	.22			.03		7.51	
New Madrid|||	do				.10	.20	2.90	.06						.75							.40	2.10	.16	.03			.55						7.25	
Poplar Bluff	Black				.40	.41	2.13							.63							.31	2.80	.08		.04		.42						7.22	
Sikeston|||	Mississippi					.36	1.30	.88						.33	.50						.38	2.53		.11			.32						6.71	
Cairo, Ill. ***	do				.12	.98	1.07	.01						.64	.01	.50					.20	1.23	1.26	.01	.01	T.	.01	.21			T.	T.	5.76	
Osage Plateau.																																		
Arcadia |||	St. Francis				.39	.23	2.04	.16	T.													.60	1.70	.44	.31	T.		.15	.20			T.	6.22	
Aurora	Neosho				1.23	1.85	.02														.43	.41	.81	.83	.10		T.	1.00					6.68	
Birchtree (near)	Black				.41	1.25	1.70							.08							.61	.64	1.70	.31			.60						7.30	
Bolivar.	Osage				.85	1.36	.36							.05							.15	.39	1.08	.87			.58						5.69	
Caplinger Mills.	Osage			T.	.53	1.09	.36	.04						T.	.54	T.					.36	.30	.63	.68	T.	T.	T.	.38					4.91	
Dean	Neosho				.38	2.65	.10														.22	.42	1.43	2.44	.01		1.34						9.14	
Elton|||	Missouri				.23	1.03	.07							.15								.49	.36	.08			.17						5.07	
Farmington	St. Francis				.28	.54	1.48							.16							.20	.18	1.37	.62		T.	.24						5.07	
Fredericktown|||	do				.16	.31	2.60							.22							.20	1.87	.40				.24						5.94	
Gale|||	White				.15	2.62	1.90	.18														.42	1.68	.67	.62			.76	.62				9.62	
Goodland	Black				.15	.37	2.10							.20								.26	1.48	.70			.25						5.51	
Greenville	St. Francis				.40	.42	1.95							.46	.29						.25	.10	3.17	.29			.03	.57	.06				7.99	
Hailey	White				1.00	2.23															.30	1.30	.53	1.11	.10								6.57	
Koshkonong	Black				.80	1.98	1.90							.15	.38						.07	.80	2.81	.14			.22	.18					9.43	
Lebanon |||	Osage				.06	2.24	1.53	.13							.95							.44	1.99	.54	.45			.24	.44				8.11	
Lockwood	do				.58	1.27			T.					.33							.35	.63	.84	1.43	T.		T.	1.19					6.62	
Mountain Grove|||	White				.16	1.30	1.83	.17						.10								.90	2.03	.90	.55			.17	.50				8.61	
Neosho	Neosho				.32	1.20	.03	T.	T.					.16							.23	.30	.74	1.17	.05		1.1.							

Daily Temperatures for April, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Mean		
Northeast Plain.																																	
Brunswick §§	Maximum	83	81	80	74	59	55	47	41	50	60	53	54	54	40	51	60	66	77	52	58	51	63	66	63	61	63	59	69	81	74	61.6	
	Minimum	36	57	56	60	56	47	31	30	23	24	35	33	36	26	22	23	31	44	32	34	38	45	38	40	38	40	37	32	41	59	37.8	
Columbia	Maximum	82	82	76	70	64	65	45	41	46	57	64	61	62	38	48	62	65	77	50	58	54	60	65	60	59	58	57	67	81	73	61.2	
	Minimum	46	57	63	58	55	36	32	29	23	34	39	39	34	28	25	36	48	46	34	38	48	43	36	47	39	45	39	32	56	53	41.3	
Fayette	Maximum	82	81	76	71	64	62	58	43	49	60	62	61	51	49	49	61	65	78	52	60	53	61	66	63	61	61	59	68	84	76	62.0	
	Minimum	34	39	56	58	53	47	29	27	20	28	31	34	39	24	20	28	35	48	23	34	38	41	31	39	35	40	36	37	49	49	36.2	
Hannibal	Maximum	80	82	77	68	64	67	42	39	45	54	60	60	53	46	44	61	54	75	49	56	51	58	61	57	58	58	53	66	89	70	59.6	
	Minimum	42	58	60	61	50	42	30	29	25	34	38	37	45	26	26	37	43	43	33	36	45	41	38	42	33	38	37	33	55	54	40.4	
Jefferson City §§	Maximum	85	87	75	70	66	68	48	45	50	58	67	64	55	41	50	68	73	78	50	61	55	58	71	66	60	57	58	68	83	74	63.6	
	Minimum	43	55	60	59	55	54	33	30	25	30	34	38	42	28	23	29	38	46	34	36	42	43	40	40	38	43	40	35	43	55	40.4	
Kirksville	Maximum	79	79	75	71	68	59	42	37	45	57	60	61	59	45	46	60	55	72	60	55	50	61	62	72	65	58	57	68	77	72	60.9	
	Minimum	42	54	58	60	43	40	26	26	19	..	32	38	42	22	18	31	40	39	29	30	31	40	39	41	39	35	32	33	46	49	36.7	
Louisiana	Maximum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Minimum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Macon §§	Maximum	81	82	78	74	58	62	43	41	48	59	63	63	48	39	48	60	62	65	52	60	51	63	65	68	62	63	68	70	82	72	61.7	
	Minimum	38	53	57	60	54	45	27	28	20	23	33	33	36	25	19	31	38	41	30	32	38	41	38	43	31	37	33	41	59	41	36.9	
Mexico §§	Maximum	83	83	79	65	64	57	46	44	49	59	65	63	51	39	49	65	62	77	51	60	54	60	69	63	60	59	57	69	82	71	61.9	
	Minimum	37	48	56	62	55	51	30	30	23	23	33	36	39	27	23	31	37	49	33	35	37	41	36	44	35	39	36	31	44	52	38.6	
St. Louis(1)	Maximum	79	76	73	68	66	70	44	45	47	52	64	64	56	50	45	65	62	76	60	58	55	49	67	61	59	54	55	64	81	72	61.2	
	Minimum	51	56	64	59	56	44	34	34	30	34	39	43	48	30	27	36	46	44	41	40	47	43	45	43	41	46	39	41	49	59	43.6	
Unionville	Maximum	78	76	77	72	68	48	44	40	43	58	57	62	62	44	46	56	60	68	56	55	50	62	62	56	63	60	58	64	74	72	59.8	
	Minimum	40	55	58	62	40	38	27	24	18	30	35	32	42	20	16	30	40	40	28	28	49	40	38	40	30	30	30	36	50	48	36.3	
Warrenton	Maximum	81	81	77	73	67	70	61	43	47	57	65	64	59	51	46	66	64	78	77	58	53	67	63	61	57	56	67	81	75	75	64.0	
	Minimum	46	55	60	56	55	54	31	29	24	28	32	38	44	27	23	31	47	42	34	37	45	40	45	35	41	35	35	50	55	55	40.5	
Southeast Lowlands.																																	
Campbell	Maximum	78	77	75	72	73	71	64	62	44	55	65	68	67	59	52	60	73	76	71	62	68	63	70	77	70	56	58	64	74	71	66.5	
	Minimum	45	56	62	56	58	54	39	30	33	28	32	44	44	35	30	27	47	43	47	43	52	50	42	42	45	49	36	33	47	57	43.2	
Caruthersville	Maximum	75	75	74	74	75	75	61	61	62	50	56	64	67	67	50	56	72	75	75	59	69	62	78	71	71	62	55	64	64	65	74	66.1
	Minimum	50	60	60	54	50	59	55	39	36	38	36	36	47	50	33	35	47	52	49	55	52	46	48	49	46	40	48	48	48	57	47.3	
Doniphan	Maximum	80	77	70	66	69	58	54	49	57	67	68	65	58	52	63	69	76	76	72	57	69	63	71	79	64	52	69	79	79	79	61.9	
	Minimum	44	55	62	57	54	55	37	31	32	26	27	42	45	34	25	27	42	45	45	44	50	49	42	40	47	40	33	41	46	48	41.9	
Jackson	Maximum	79	76	72	72	71	70	63	52	53	55	65	68	64	64	48	61	72	73	72	62	67	65	66	65	69	55	64	74	74	74	65.6	
	Minimum	36	51	60	55	55	36	27	26	23	26	38	39	31	26	24	45	43	43	40	49	43	40	39	40	38	32	29	41	51	51	39.3	
Poplar Bluff	Maximum	79	78	72	72	68	69	58	55	49	56	65	70	65	60	51	62	73	76	71	60	70	61	71	79	61	59	69	66	75	71	65.8	
	Minimum	45	51	63	58	61	55	40	30	32	27	30	44	40	36	30	27	49	46	48	44	53	50	42	41	47	41	34	32	43	57	43.2	
Sikeston	Maximum	78	78	71	71	74	69	51	52	46	53	63	68	66	61	59	60	69	73	67	61	66	59	68	79	56	49	..	63	73	67	64.5	
	Minimum	66	58	62	56	58	54	40	33	32	30	31	43	45	36	30	47	40	44	53	43	52	48	42	45	43	43	38	48	56	67	45.4	
Cairo, Ill.	Maximum	77	77	76	74	75	67	50	49	44	51	61	66	67	58	45	58	69	73	69	62	64	55	66	71	55	50	52	61	72	68	62.7	
	Minimum	47	58	64	56	54	50	38	36	34	35	37	46	49	36	32	36	49	50	45	45	51	48	45	48	40	40	38	48	56	67	45.2	
Ozark Plateau.																																	
Arcadia §§	Maximum	79	74	67	67	63	67	49	51	51	53	66	66	59	42	49	64	74	73	53	55	65	68	67	53	44	55	67	78	78	78	61.7	
	Minimum	31	53	58	57	56	52	33	28	24	23	24	31	37	28	24	23	25	38	45	39	40	43	40	39	40	41	34	30	41	51	37.9	
Aurora	Maximum	81	78	75	72	62	59	47	47	50	57	66	65	63	56	52	69	77	80	74	48	60	54	68	73	63	56	56	68	79	77	64.4	
	Minimum	49	61	62	55	54	37	33	30	26	30	34	36	48	26	23	34	51	52	40	41	47	45	38	49	46	40	35	32	54	53	42.1	
Birchtree	Maximum	80	75	69	67	66	68	50	57	67	55	65	66	67	58	50	65	73	75	70	54	65	61	68	64	62	51	56	64	79	70	64.6	
	Minimum	44	56	62	57	58	48	35	26	26	25	27	38	60	29	26	25	50	52	41	41	48	46										

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CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., MAY, 1928. No. 5.

GENERAL SUMMARY.

While May, 1928, was quite satisfactory from the temperature side, and was quite free from severe storms and frosts, the well established tendency to scanty precipitation over most of the State in March and April continued in May. However, two rain spells of several days each, the first about the middle of the month and the other at the end prevented any very serious injury to vegetation, although oats, wheat, all grasses, and most truck crops were failing fast and much in need of good soaking rains, and soil moisture was still too low for good growth even after the rains.

The weather was largely favorable for outdoor work, and corn was all planted in good time and the fields were well prepared as a rule, and kept well cultivated. In the southeastern lowlands and most of the Ozark Plateau crop conditions were for the most part in better shape than elsewhere because there more rain fell during April. All vegetation was backward, foliage in general being on the average 10 days behind the usual.

TEMPERATURE.

The monthly mean temperature for the State, 62 stations reporting, was 65.8°, or 1.2° above normal. The northwest plateau experienced more warmth than the other sections, the plus departure there being nearly 3°, while there was a small excess in the Ozark region, and, strange to say, an average of nearly one degree deficiency in the southeastern low lands, usually the warmest part of the State. There were some quite warm days, but no hot days, in each decade, the highest temperature occurring in the northern sections, there being relatively fewer southern stations reporting afternoon temperatures of 90° or higher; the lowest temperatures, 32° or lower, also occurred at about five southern stations, Jackson, Goodland, Greenville, Arcadia, and Salem, the minimum being 29°, at Jackson on the 8th. Local frost occurred in the extreme north portion on the 6th, 7th, and 28th, and in the Ozark Plateau on the 7th, and 8th.

PRECIPITATION.

The average precipitation for the State, 97 stations reporting, was 2.84 inches, or 1.86 inches less than the 56 year's average, and more than 4 inches less than May, 1926. The deficiency was quite marked in all sections, ranging from more one inch in the southeastern low lands to more than 3 inches in the northwestern plateau. The first general rain period of any importance began about the 15th and prevailed from two to six days or more, breaking what was beginning to be quite a bad drought for spring. Another two to three-day spell prevailed at the close of the month. Some local heavy rain occurred on the 18th, 22d, and 31st. The greatest amount in any 24 consecutive hours was 2.80 inches, at Lebanon on the 22d; and the greatest local monthly fall was 6.37 inches, at Seligman, Barry County. At Poplar Bluff, more than one inch fell in about 30 minutes, but no damage was reported. The driest county, with a monthly total of 0.78 inch, was Platte, in the northwest plateau.

MISCELLANEOUS PHENOMENA.

Fogs, dense.---At Columbia, 19th. In the southeast counties, 20th.
Frost, light.---6th, and 28th.
Frost, heavy.---7th, and 8th.
Hail.---Light 18th, 21st, and 30th.
Halos, lunar.---2d,
Halos, solar.---2d, 7th, 8th, 10th, 12d, 13th, 14th, 17th, 20th, 21st, and 28th.
Thunderstorms.---2d, 4th, 10th, 11th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22d, 24th, 25th, 26th, 30th, and 31st.

SPECIAL STORM NOTES.

May 15.---In Atchison County, Mo., from the vicinity of Rockport to 7 to 9 miles east of Tarkio, a distance of 16 miles, a tornado swept a path from 50 to 100 feet wide, from 3:30 p. m. to 4 p. m. Damage about \$10,000. No persons killed and none injured.

On the same date, about 6:30 p.m., at Raymore, Cass County, Mo., a tornado traveling from southwest to northeast in a path from 30 to 100 feet wide, destroyed about \$8,000 worth of tangible property. After a few miles the tornado left the earth and did not touch again, as far as could be learned. On May 30, quite a violent wind struck in the vicinity of Oregon, Holt County, Mo., referred to as a 'near tornado'. Damage about \$300.

May 30.---Accompanying a severe thunderstorm heavy hail struck Cuba, Mo. about 4:30 p. m. The stones were large and covered the ground two or three inches deep. Damage by wind to trees, utility companies wires, and some small outbuildings, estimated at about \$400. By hail to windows and roofs \$150.

May 31.---Strong winds did some damage, about \$75 worth in the vicinity of Centerview, Johnson County, Mo. And at Seligman, Barry County, on the same date, a severe electric storm prevailed for 12 hours. Three persons were killed by lightning in one of the berry fields.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine.		Wind.				
		7 a. m.	7 p. m.	Total hours.	Percentage of possible.	Total movement, miles.	Average hourly velocity.	Max. velocity.		
								Miles per hour.	Direction.	Date.
Columbia.....	29.96	69	46	333	75	4,981	6.7	23	n.	30
Hannibal.....	29.96	69	44	333	90	5,812	7.8	22	n.	25
Kansas City.....	29.94	63	44	370	90	6,712	9.0	51	n.	30
St. Joseph.....	29.94	67	43	316	71	5,565	7.5	26	ne.	30
St. Louis.....	29.96	64	49	296	67	5,016	10.8	38	sw.	14
Springfield.....	29.96	69	47	336	77	6,777	9.1	33	w.	17
Cairo, Ill.....	29.96	74	53	...	...	5,892	7.9	27	sw.	4
Keokuk, Iowa.....	29.96	63	43	318	71	4,737	6.4	24	w.	24

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR MAY.

Year.	Temperature.				Precipitation.			Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelting.	With .01 inch or more.	Clear.	Partly cloudy.
1888.....	62.1	-2.3	93	30	5.35	+0.58	....	0	5	....	....
1889.....	63.5	-0.9	96	28	6.56	+1.79	....	0	5	....	....
1890.....	62.8	-1.6	96	32	3.47	-1.30	....	0	6	....	....
1891.....	61.5	-2.9	97	28	4.26	-0.51	....	0	8	....	....
1892.....	60.7	-3.7	91	28	7.80	+3.03	3.90	0	17	5	9
1893.....	66.8	-2.6	94	30	5.89	+1.12	5.83	0	10	11	9
1894.....	63.7	-0.7	95	22	3.99	-0.78	4.20	0	8	13	7
1895.....	64.6	+0.2	103	28	4.08	-0.69	3.43	0	9	13	6
1896.....	70.1	+5.7	96	32	9.09	+4.32	4.66	0	12	12	7
1897.....	62.4	-2.0	93	28	2.56	-2.21	3.82	0	7	16	4
1898.....	65.2	+0.8	97	31	7.90	+3.13	5.50	0	14	12	9
1899.....	66.9	+2.5	96	34	6.26	+1.49	5.28	0	2	10	13
1900.....	66.3	+1.9	97	29	3.69	-1.06	4.00	0	10	14	6
1901.....	63.8	-0.6	98	30	1.47	-3.30	3.04	0	6	15	6
1902.....	69.4	+5.0	98	39	5.03	+0.25	4.35	0	11	13	7
1903.....	65.1	+0.7	92	23	7.10	+2.33	3.10	0	15	9	12
1904.....	63.1	-1.3	95	32	5.03	+0.26	4.33	0	12	13	8
1905.....	64.9	+0.5	94	34	4.87	+0.10	4.55	0	10	12	8
1906.....	66.3	+1.9	98	27	2.16	-2.61	3.83	0	7	15	6
1907.....	59.5	-4.9	91	17	5.56	+0.79	4.33	0	10	14	6
1908.....	66.1	+1.7	96	24	6.92	+2.15	5.65	0	12	12	9
1909.....	63.3	-1.1	96	23	5.34	+0.57	5.26	0	9	15	9
1910.....	60.1	-4.3	94	32	6.62	+1.85	4.30	0	13	11	8
1911.....	68.8	+4.4	101	27	1.55	-3.22	2.06	0	5	19	7
1912.....	67.6	+3.2	97	30	3.86	-0.91	4.90	0	7	18	5
1913.....	65.8	+1.3	101	33	3.05	-1.93	2.95	0	8	16	7
1914.....	66.6	+2.0	98	31	1.47	-3.40	3.00	0	5	17	9
1915.....	63.7	-1.4	97	30	7.86	+3.04	7.10	0	12	12	7
1916.....	65.6	+0.7	96	33	5.61	+0.89	4.10	0	11	15	8
1917.....	58.7	-6.2	91	30	4.33	-0.47	2.60	0	10	15	7
1918.....	68.3	+3.8	100	28	5.49	+0.68	5.25	0	10	16	8
1919.....	62.0	-2.5	93	35	5.80	+0.87	4.50	0	13	10	11
1920.....	63.8	-0.8	97	32	4.85	+0.04	3.70	0	12	9	13
1921.....	66.4	+2.0	102	28	3.69	-1.20	4.12	0	7	17	8
1922.....	67.2	+2.3	97	38	3.17	-1.77	2.50	0	10	14	7
1923.....	62.7	-1.9	97	25	4.59	-0.49	3.48	T.	12	11	10
1924.....	58.6	-6.0	96	31	4.67	-0.03	3.90	0	10	13	8
1925.....	61.2	-3.4	98	24	2.14	-2.56	2.86	0	7	14	9
1926.....	67.0	+2.4	100	32	2.73	-1.97	5.80	0	7	16	9
1927.....	64.6	0.0	94	34	6.98	+2.28	4.62	0	12	11	10
1928.....	65.8	+1.2	95	29	2.84	-1.86	2.80	0	8	16	9

Climatological Data for May, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.			Number of days.				Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	With precip., 0.1 inch or more.	Clear.			Partly cloudy.	Cloudy.
Northeast Plain.																				
Brunswick	Chariton	652	48	65.6	+ 1.3	92	10	42	1†	42	2.05	-2.84	0.88	0	11	20	3	8	sw.	O. K. Benecke
Clifton Hill	Randolph	731	28	64.8	+ 0.6	89	2†	38	28	40	2.21	-2.93	1.07	0	10	18	6	7	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	65.7	+ 1.4	91	10	40	28	36	1.74	-3.12	0.70	0	11	12	11	8	s.	U. S. Weather Bureau
Downing	Schuyler	876	6	64.8	.....	91	9	38	12	38	1.82	-2.59	1.15	0	8	15	14	2	nw.	James Taylor
Payette	Howard	661	47	65.0	+ 0.7	91	9†	36	28	49	1.29	-3.33	0.41	0	10	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	65.1	+ 0.1	91	3	33	8	37	3.52	-1.25	1.72	0	9	14	13	4	.....	Chamber of Commerce
Gorin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	2.60	-2.01	1.74	0	7	8	13	10	nw.	J. W. Pulliam
Hannibal	Marion	534	35	64.9	+ 1.3	91	10	40	28	38	3.28	-1.72	1.54	0	8	13	10	8	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	66.8	+ 1.9	92	10	41	8	41	2.32	-2.23	0.96	0	8	22	3	6	s.	Miss Emma Swift
Kirkville	Adair	969	38	63.6	+ 1.1	89	9	39	7†	43	1.05	-4.16	0.50	0	4	21	8	2	n.	Prof. J. S. Stokes
Louisiana	Pike	469	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. T. Farrell
Macon	Macon	875	28	65.5	+ 1.6	94	10	40	7†	39	2.33	-2.24	1.10	0	7	13	13	5	se.	W. C. Brown
Mexico	Andrahn	800	38	65.4	+ 1.1	93	12	40	7†	47	2.05	-2.71	0.65	0	9	20	4	7	sw.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	1.31	.....	0.26	0	8	15	10	6	sw.	J. S. Conway
St. Charles	St. Charles	456	39	66.0	+ 3.0	92	10	40	7†	43	2.65	-1.53	1.04	0	7	16	7	8	n.	L. C. Sager
St. Louis (1)	St. Louis City	568	53	66.6	+ 0.4	91	10	42	7	30	2.18	-2.16	0.96	0	11	16	8	7	sw.	U. S. Weather Bureau
St. Louis (2)	do.	578	15	66.4	+ 0.3	91	10	43	7	29	2.88	-1.36	0.78	0	12	19	5	7	se.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	1.19	-3.79	0.41	0	7	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	64.1	0.0	92	10	38	7	38	3.15	-1.80	2.10	0	6	14	14	3	se.	Frank Haff
Unionville	Putnam	1,062	34	63.9	+ 1.5	90	24	34	12	38	1.92	-3.04	0.80	0	6	16	8	7	nw.	Geo. W. Davis
Warrenton	Warren	816	45	66.2	+ 1.2	92	10	41	7	37	2.91	-1.88	0.87	0	7	14	10	7	sw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	64.8	+ 1.0	88	10	40	7	32	2.55	-1.38	1.30	0	8	9	9	13	n.	U. S. Weather Bureau
Section means and extremes				65.3	+ 1.1	94	10	33	8	49	2.24	-2.40	2.10	0	8	15	9	7	sw.	
Southeast Lowlands.																				
Campbell	Dunklin	314	2	66.4	.....	89	10†	39	8	41	2.75	.....	1.10	0	9	15	8	8	n.	Jeff. King
Canthersville	Peniscot	265	31	69.3	+ 0.2	88	30†	45	8	35	3.64	-0.62	1.21	0	6	24	0	7	s.	Sam Smith
Doniphan	Ripley	344	23	67.0	+ 0.1	90	30	35	8	45	3.71	-0.45	0.96	0	8	20	10	1	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	64.5	+ 1.3	88	10	29	8	46	3.46	-0.90	0.82	0	12	11	6	14	s.	John G. Putz
Marble Hill	Bollinger	470	32	66.0	+ 0.3	88	10	35	8	46	4.05	-0.18	0.92	0	9	17	9	5	w.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	2.37	-1.79	1.11	0	9	22	3	6	sw.	John A. Spence
Poplar Bluff	Butler	349	23	66.9	+ 1.1	88	10	40	9	42	3.29	-1.74	0.92	0	7	20	7	4	s.	J. H. Wolpers
Sikeston	Scott	318	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Carlos W. McKinney
Cairo, Ill.	Alexander, Ill.	358	52	66.9	+ 1.5	88	10	47	8	32	1.75	-1.96	0.39	0	12	10	7	14	n.	U. S. Weather Bureau
Section means and extremes				66.7	+ 0.7	90	30	29	8	46	3.13	-1.09	1.21	0	8	17	6	8	s.	
Ozark Plateau.																				
Arcadia	Iron	926	46	63.0	+ 1.6	88	10	31	8	42	3.10	-1.68	0.87	0	10	23	1	7	s.	Arcadia College
Aurora	Lawrence	1,370	37	66.6	+ 0.7	90	30	43	5	35	5.25	-0.21	1.85	0	7	18	7	6	nw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	65.6	+ 0.4	90	30	36	8	42	1.94	-2.37	0.76	0	5	21	5	5	n.	V. H. Kirkendall
Bolivar	Folk	1,071	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southwest Baptist College
Dean	McDonald	1,000	28	67.2	+ 1.4	90	9	39	5	43	4.58	-1.38	1.10	0	9	22	2	7	e.	H. E. Dean
Eldon	Miller	934	31	66.1 ^a	+ 1.6	92	10	41	28	43	2.32	-2.54	1.29	0	7	4*	18*	4*	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	64.4	+ 0.6	92	10	34	8	40	5.01	-0.49	0.95	0	12	13	14	4	ne.	Robert Forsyth
Goodland	Iron	1,000	33	63.8	+ 0.7	91	10	30	8	49	3.47	-1.15	1.00	0	6	13	12	6	s.	F. M. Adams
Greenville	Wayne	881	5	63.6	.....	85	30†	30	8	44	3.51	.....	1.47	0	7	19	6	6	s.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. W. Madison
Koshkonong	Oregon	958	26	67.8 ^b	+ 1.0	89	10†	43	9	42	3.16	-1.68	1.02	0	8	14 ^b	6 ^b	9 ^b	.....	R. M. Hitt
Lebanon	Laclede	1,265	39	63.2	+ 2.4	88	10†	39	28	42	4.34	-1.27	2.80	0	6	20	6	5	e.	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	66.6	+ 2.0	90	31	41	5	34	1.49	-3.59	0.99	0	4	20	3	8	sw.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	65.6	+ 1.7	92	10	42	5†	39	3.59	-1.26	1.41	0	11	17	6	8	nw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	65.6	+ 0.6	87	30	36	7	41	4.40	-1.67	1.09	0	6	22	3	6	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	64.5	0.0	87	9	43	8	36	5.03	+0.02	1.25	0	10	14*	10*	6*	w.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	63.9	+ 1.4	86	10	32	8	41	5.26	+0.72	1.76	0	10	19	6	6	nw.	A. C. Leach
Seligman	Barry	1,542	25	65.4	+ 0.5	86	30	42	5	37	6.37	+0.78	2.21	0	9	17	8	6	e.	Floyd E. Pawner
Seymour (near)	Webster	1,612	21	63.8	+ 0.3	87	10	40	28	38	6.05	+0.35	2.01	0	9	19	5	7	s.	Irma H. Huiley
Springfield	Greene	1,324	39	66.1	+ 1.6	87	10	45	5	28	3.97	-1.58	1.52	0	12	23	6	2	s.	U. S. Weather Bureau
Section means and extremes				65.2	+ 0.3	92	10	30	8	49	4.04	-1.12	2.80	0	8	18	7	6	s.	
Southwest Plain.																				
Amoret	Bates	831	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Andrew Rood
Appleton City	St. Clair	853	33	67.0	+ 1.9	91	30	44	5†	36	2.25	-3.29	1.09	0	7	16	12	3	sw.	W. G. Bigelow
Centerview	Johnson	872	40	67.2	+ 1.9	93	10†	42	5	41	2.92	-1.74	0.97	0	9	15	14	2	sw.	E. A. Markey
Clinton	Henry	765	34	66.8	+ 1.6	86	10	44	5	33	3.04	-2.40	1.00	0	8	16	10	5	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	65.8	+ 1.8	94	30	42	5	39	1.28	-3.53	0.52	0	8	5	7	19	s.	John H. Patterson
Lamar	Barthol	980	40	66.2	+ 0.3	90	30	41	5	35	2.31	-3.15	0.90	0	9	21	4	6	sw.	Jesse A. Mann
Lamonte	Pettis	867	26	67.4	+ 2.7	95	30	42	5	41	1.57	-3.38	0.50	0	9	17	12	2	sw.	J. E. Wheeler
Marshall	Saline	779	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. H. Black
Nevada	Vernon	862	34	66.2	+ 1.6	91	30	43	5	35	1.97	-3.75	0.55	0	6	21	3	7	s.	George A. Kaupp
Warsaw	Benton	687	27	67.0	+ 1.2	92	10†	39	8	45	2.75	-2.48	1.45	0	6	16	10	5	e.	Everett Martin
Section means and extremes				66.7	+ 1.6	95	30	39	8	45	2.26	-2.97	1.45	0	8	16	9	6	sw.	
Northwest Plateau.																				
Bethany	Harrison	916	35	66.6	+ 4.0	90	9	35	28	43	1.52	-3.46	0.90	0	6	12	11	8	nw.	M. H. Moulton
Chillicothe	Livingston	779	18	65.4	+ 1.7	92	9	35	2											

Daily Precipitation for May, 1928																																				
Stations.	Drainage-basins.	Day of month.																															Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Northeast Plain.																																				
Boonville||	Missouri.											.10	.02			.44	.63	.05	.02		.10									.07		.28	1.71			
Brmswick||	Grand					.07						.04	.06			.10	.88	.03	.40	.11										.04		.30	2.05			
Clifton Hill	Chariton.											.05				.02	.30	1.07	.15	.12									.20	.02	.05	.22	.21			
Columbia***	Missouri.											.06					.68	.02	.09	.42		.01									.01	.25	.04	1.74		
Downing	Mississippi											.04					.10	.05		.15			.24								.10	.11	1.82			
Fayette|||	Missouri.											.09				.15	.20	.41	.05	.02	.11									.08		.13	.05	1.29		
Fulton.	do					.02						.06	.01				.17	.72	.78	.04			.07								.06		.76	3.52		
Gorin.	Mississippi.											.18					.13	.24		.14			.21								.08		2.60			
Hannibal***	do											.18				T.	1.25	.29	T.	1.48	.01	.01						T.	T.		.03	.03	T.	3.28		
Hermann||	Missouri.					.06								.03			.03	1.08	.04	.02		.03	.30						.01		.05	.04	.23	1.92		
Jefferson City||	do													.07	.96	.20	.07				.02	.03	.03								.10		.87	2.32		
Kirksville	Mississippi.													.50	.15							.15										.25	1.05			
Louisiana	do																																			
Macon ||	Chariton.					.02						.32					.10			.04	.10									.10		.65	2.33			
Mexico ||	Mississippi.											.03					.03	.65	.09	.60	.01		.10								.04		.50	2.05		
Milan||	Grand											.38					.36	.60	.18				.06									.08	1.74			
Monroe City.	Mississippi											.20					.12	.18	T.	.26	.08									.10		.16	.21	1.31		
Pacific||	Meramec					.05								.05			.27	1.40	.42	.08			.08	.15							.08	.05	1.6	2.89		
St. Charles	Missouri.					.10						.04					.55	1.04	.35	T.			T.						T.		.25	T.	.32	2.65		
St. Louis (1)***	Mississippi.					.11										.18	.34	.68	.45	T.			.01						T.	.05		.03	.14	.15	T.	2.18
St. Louis (2)*	do					.10						T.	T.				.68	.78	.57				.02						.01	.06		.03	.09	.13	T.	2.88
Shelbina |||	do					.03											.15	.28		.16	.03										.10		.44	1.19		
Steffenville	do											.45					.30	.20		.20	.05										T.	.05	T.	3.15		
Union|||	Meramec					.10								.10			.03	1.90	.38				.34	.05	.13						.02		.08	.02	4.0	3.55
Unionville	Chariton																.40	.35		.80				.10								.12	.15		2.92	
Warrenton	Mississippi.																.87	.66	.10				.15									.30		.43	2.91	
Keokuk, Ia.***	do					.01								.15	.01		.77	.53	T.	.32			.07				.09				T.	T.			2.55	
Southeast Lowlands																																				
Campbell||	St. Francis	.04				.36											.01	.40		.01	.15			.10	.10								.58	2.75		
Cape Girardeau||	Mississippi					.46												.41			T.	.66	.86	.36	.62	.02					.06	.12	.39	4.00		
Caruthersville||	do					.44														.08		.55		.12									.16	1.21	3.64	
Dexter||	St. Francis					.26											.35				.12	.07			.12							.25	.38	.60	3.93	
Douphan	Black					.25											.30			.08	.32	.96		.62	.53								.75	3.71		
Jackson	Mississippi.					.63											.03	.07	.01		.52	.02	.82	.28	.25							.06	.46	.31	3.46	
Marble Hill.	Mississippi.					.45	.30										.25	.20				.60	.55	.30								.48	.92	4.05		
Morehouse.	do					.17												.19			.15	.04										.06	.24	2.37		
New Madrid||	do					.08												.03			.36	.20		.11	.27							.10		.87	3.29	
Poplar Bluff	Black					.33												.05	.41		.92	.15		.56								T.		.87	3.29	
Sikeston||	Mississippi.																																			
Cairo, Ill.***	do					.17											.03	.05	T.	T.	.12	.39	.04	.26	.19				.03	T.		.04	.17	.26	1.75	
Ozark Plateau.																																				
Arcadia||	St. Francis					.39											.12	.60		T.		.36	.08	.39								.04	.11	.87	3.10	
Aurora	Neosho					.05											.56	T.	.81		1.21		T.	1.85									.70	5.25		
Birchtree (near).	Black					.12											.76					.12											.52	1.94		
Bolivar	Osage																																			
Caplinger Mills.	Osage																																			
Dean	Neosho																																			
Eldon|||	Missouri.																																			
Farlington	St. Francis.					.26																														
Fredericktown|||	do					.08																														
Galena|||	White					.48																														
Goodland	Black																																			
Greenville	St. Francis					.07																														
Hailey	White																																			
Koshkonong	Black					.38																														
Lebanon||	Osage					.27																														
Lockwood.	do																																			

Daily Temperatures for May, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean
Northeast Plain.																																
Brunswick §§.....	82	87	88	60	78	75	75	81	91	92	72	69	75	80	73	78	80	82	83	81	72	81	81	89	81	85	71	78	83	81	78	79.5
Maximum.....	82	87	88	60	78	75	75	81	91	92	72	69	75	80	73	78	80	82	83	81	72	81	81	89	81	85	71	78	83	81	78	79.5
Minimum.....	42	45	64	60	42	43	45	45	50	59	57	43	46	51	52	58	62	66	69	57	51	52	56	50	55	64	49	42	42	53	59	51.6
Columbia.....	78	89	88	76	74	73	70	78	88	91	71	63	72	77	71	79	76	80	80	79	73	79	81	84	78	79	69	74	79	84	77	77.7
Maximum.....	78	89	88	76	74	73	70	78	88	91	71	63	72	77	71	79	76	80	80	79	73	79	81	84	78	79	69	74	79	84	77	77.7
Minimum.....	44	60	67	48	41	46	44	45	52	64	55	45	46	53	61	59	62	65	61	60	59	56	53	50	57	52	50	40	56	54	59	53.7
Fayette.....	81	87	88	66	78	76	74	80	91	91	72	67	74	79	79	84	76	82	82	83	75	82	87	87	81	84	78	84	86	84	83	80.7
Maximum.....	81	87	88	66	78	76	74	80	91	91	72	67	74	79	79	84	76	82	82	83	75	82	87	87	81	84	78	84	86	84	83	80.7
Minimum.....	38	45	59	53	38	40	43	43	42	56	53	43	43	51	56	57	59	61	55	55	50	53	59	45	54	47	46	36	27	56	57	49.3
Hannibal.....	77	88	88	75	74	71	69	76	88	91	69	63	71	76	73	77	79	81	78	80	72	78	75	86	75	71	66	72	76	79	70	76.3
Maximum.....	77	88	88	75	74	71	69	76	88	91	69	63	71	76	73	77	79	81	78	80	72	78	75	86	75	71	66	72	76	79	70	76.3
Minimum.....	52	53	63	51	43	42	42	41	50	63	54	43	44	53	61	62	62	64	60	56	59	58	56	51	58	55	51	49	58	55	59	51.5
Jefferson City §§.....	81	90	86	71	75	74	73	79	89	92	70	66	75	80	71	86	78	85	85	82	70	78	81	85	78	79	71	76	83	89	78	79.2
Maximum.....	81	90	86	71	75	74	73	79	89	92	70	66	75	80	71	86	78	85	85	82	70	78	81	85	78	79	71	76	83	89	78	79.2
Minimum.....	48	54	63	67	46	47	47	41	48	56	58	46	44	53	58	60	60	62	63	60	58	58	52	58	55	53	46	55	55	59	51.5	
Kirksville.....	78	82	86	83	86	73	70	79	89	84	72	63	69	75	72	73	81	79	81	79	73	79	78	88	84	77	69	75	81	77	68	77.5
Maximum.....	78	82	86	83	86	73	70	79	89	84	72	63	69	75	72	73	81	79	81	79	73	79	78	88	84	77	69	75	81	77	68	77.5
Minimum.....	45	41	43	50	43	43	39	43	52	62	54	39	41	46	60	58	58	55	56	52	50	50	57	51	62	56	48	40	39	51	53	49.6
Louisiana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maximum.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Minimum.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Macon §§.....	81	90	88	66	75	76	73	81	92	94	72	69	74	77	72	79	80	82	81	82	74	80	82	88	81	78	68	75	80	88	73	78.9
Maximum.....	81	90	88	66	75	76	73	81	92	94	72	69	74	77	72	79	80	82	81	82	74	80	82	88	81	78	68	75	80	88	73	78.9
Minimum.....	45	52	63	65	42	45	40	45	53	60	54	41	42	48	53	59	60	63	57	54	55	53	56	51	59	55	47	40	49	55	55	52.1
Mexico §§.....	81	90	89	72	75	72	70	80	91	93	70	66	73	76	69	80	79	82	83	82	72	79	75	86	76	80	69	76	84	87	73	78.5
Maximum.....	81	90	89	72	75	72	70	80	91	93	70	66	73	76	69	80	79	82	83	82	72	79	75	86	76	80	69	76	84	87	73	78.5
Minimum.....	58	50	62	67	43	43	40	40	44	56	55	40	41	50	56	60	61	63	59	57	58	55	75	80	76	55	49	40	50	54	58	52.4
St. Louis (1).....	76	84	86	76	73	73	67	75	86	91	65	63	69	77	70	77	76	82	81	80	75	79	77	80	77	72	71	72	73	81	71	76.1
Maximum.....	76	84	86	76	73	73	67	75	86	91	65	63	69	77	70	77	76	82	81	80	75	79	77	80	77	72	71	72	73	81	71	76.1
Minimum.....	56	59	61	53	49	54	42	48	56	64	56	46	46	54	62	60	65	66	68	65	62	61	61	62	61	57	57	52	56	59	61	57.2
Unionville.....	78	83	84	80	75	73	73	80	88	84	72	70	73	76	70	72	80	80	80	78	75	80	80	84	79	72	75	78	80	73	77.9	
Maximum.....	78	83	84	80	75	73	73	80	88	84	72	70	73	76	70	72	80	80	80	78	75	80	80	84	79	72	75	78	80	73	77.9	
Minimum.....	44	50	55	50	44	40	38	46	54	62	54	34	40	46	60	57	55	56	58	48	50	45	55	52	60	54	40	40	56	48	50	49.9
Warrenton.....	77	88	88	83	73	71	70	77	87	92	89	66	72	78	75	82	79	84	81	80	75	78	77	82	79	75	71	72	89	85	75	78.7
Maximum.....	77	88	88	83	73	71	70	77	87	92	89	66	72	78	75	82	79	84	81	80	75	78	77	82	79	75	71	72	89	85	75	78.7
Minimum.....	49	54	62	57	44	47	41	43	50	61	55	42	43	49	60	59	62	64	63	62	57	57	60	47	66	55	52	42	53	56	57	53.8
Southeast Lowlands.																																
Campbell.....	80	85	86	78	72	76	69	74	82	89	76	70	77	77	75	79	80	84	77	82	81	77	81	78	85	89	79	76	78	87	74	79.1
Maximum.....	80	85	86	78	72	76	69	74	82	89	76	70	77	77	75	79	80	84	77	82	81	77	81	78	85	89	79	76	78	87	74	79.1
Minimum.....	49	48	51	59	53	40	48	39	40	47	60	51	45	55	60	62	61	63	63	61	57	59	57	51	56	49	40	44	55	55	63	53.8
Caruthersville.....	76	84	84	84	73	75	75	74	83	87	87	76	75	77	72	81	81	85	85	78	78	64	80	80	82	82	81	81	77	88	88	79.8
Maximum.....	76	84	84	84	73	75	75	74	83	87	87	76	75	77	72	81	81	85	85	78	78	64	80	80	82	82	81	81	77	88	88	79.8
Minimum.....	48	57	58	65	55	50	51	45	48	58	54	58	50	60	65	65	66	68	65	65	64	62	61	57	60	55	64	55	60	61	64	58.8
Doniphan.....	85	86	86	80	77	75	72	84	89	77	69	69	70	72	79	84	84	78	83	89	77	84	83	87	81	85						

1.05
VMS
1.32

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, MO., JUNE, 1928. No. 6.

GENERAL SUMMARY.

June, 1928, was an outstanding cool, wet month in all Missouri. Only one June in about 40 years (1903) was as cool. With a rainfall of 11.17 inches for the State as a whole it was not only the wettest June but the wettest of all other months in 60 years, the previous record for wetness going to July, 1875, with 9.77 inches.

The highest temperature reading reported was only 91°, in the southwest part of the State, the lowest maximum for any June of record; while on the other hand the record low temperatures of previous Junes were quite closely approached they were not equaled.

Rains were excessive in all sections, but with from two to four times the normal in central, eastern, and southeastern parts, most creeks and rivers, except the Missouri River, reached record flood stages, destroying thousands of acres of crops. Upland crops were damaged by washing of the soil, and replanting of fields was common. Wheat, oats, pastures, and meadows, considered much below the average at the close of May, made excellent gain in condition and matured to very fair yields. However, harvest was delayed by wet fields, and there was some lodging and overripe grain.

Thunderstorms were frequent and severe, but there were relatively few violent winds, and almost no extensive damaging hail.

TEMPERATURE.

The monthly mean temperature for the State, 66 stations reporting, was 67.7°, or 5.8° below normal. It was the second coolest June of record, being only 0.4° warmer than the same month in 1903. Temperatures were persistently below normal, rising above normal on not more than six days during the month. Afternoon maxima were 90° or higher at only four stations on one day. During the first week, night temperatures were in the middle 40's, although such values, and even lower, have occurred in other Junes.

PRECIPITATION.

The average precipitation for the State, 97 stations reporting, was 11.17 inches, or 6.50 inches more than the 56 years' average, and the largest excess of any June of record, and in fact the wettest of all other months, the previous record being 9.77 inches in July, 1875. Rain fell on from 11 to 20 days; and total monthly amounts varied from about 5 inches at Hannibal to 22 inches at Jackson. Across the southern-third of the State amounts were from three to four times the usual; and in the east and central-eastern counties from two to three times the normal occurred. Flood damage extended over nearly all bottom lands; many of the smaller streams reaching record stages. Excessive downpours occurred on several dates, 7.34 inches on the 19-20th, at Mexico, being the greatest for this month, and the greatest 24-hour fall for June of record. At Columbia, 1.03 inches fell in 15 minutes on the 19th. The greatest monthly total was 22 inches, at Jackson, Cape Girardeau County.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—At a few widely separated points, 15th, 21st, and 30th.
Hail.—Small, with little or no damage, at Eldon on the 9th; Kansas City, Arcadia, Centerville, 12th. Aurora, 18th; Brunswick, 19th; Clifton Hill, 21st; Kansas City, 22d, and Springfield, 28th.
Halos, lunar.—On the 23d. Solar.—1st, 2d, 9th, 10th, 12th, 13th, 15th, 16th, 20th, 21st, 22d, 27th, 29th, and 30th.
Thunderstorms.—1st, 4th, 5th, 7th, 8th, 9th, 12th, 13th, 15th, 16th, 17th, 18th, 19th, 20th, 22d, 23d, 24th, 27th, 28th, and 30th.

SPECIAL NOTES.

June 8.—Thunderstorm squalls damaged buildings, trees, and telephone service lines at Trenton, Gentry County; about \$200. At Kirksville, Adair County, \$600. Seligman, Barry County, about \$200.
June 12.—Strong thunderstorm squall damaged property about \$200 at Trenton.
June 16.—During severe storm at Trenton.

rooted, and other damage done at La Plata and nearby towns in Macon County; loss about \$1000. The same date a similar storm, at about 11 p. m., caused about \$350 loss at Lebanon, Laclede County.

June 17.—High wind resulted in about \$300 damage to barns, small farm homes, and other property in Knox and Shelby Counties.

June 19.—High wind during a thunderstorm at Center, Ralls County, about 6 p. m., moved a few barns or other small houses from their foundations, and some other damage; loss about \$500. At or in the vicinity of Hannibal, Marion County, during the forenoon, about 11 a. m., a few buildings were damaged by high wind; about \$200.

TORNADOES.

June 18—Parts of Holt, Andrew, Gentry, and Daviess Counties were the scene of two or more tornadoes. The first apparently originated near New Point, Holt County. The path was about six miles long and about 300 feet wide. One person was killed and two injured. Loss to buildings, household effects, etc., about \$50,000. About 6:30 p. m. another tornado started about midway between Rosendale and Blockow, Andrew County. It traveled east-northeast and left the ground when it entered Gentry County. Width of path varied from 150 feet to 400 feet or more. No persons killed and none injured. Still later, about 8 p. m., a tornado-like wind passed over or near Pattonsburg, Daviess County, coming from the southwest. No persons were killed or injured. Dwellings, barns, school houses, and animals were damaged or destroyed within an area embraced by the towns of Rosendale, Whitesides, King City, Rea, and Pattonsburg, the loss being put at about \$150,000.

FLOOD DAMAGE.

The excessive June rains caused heavy loss by washing away lands, and flooding the smaller valleys and lower grounds. Nearly all of the small rivers and creeks were out of banks, and most of them in the central and southeastern sections went out of banks four and five times. Crops of course were destroyed. The damage to highways, and bridges was heavy. In Boone County, alone, the approximate damage to bridges and highways is reported to \$100,000.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations.	Mean barometric pressure (sea-level).	Mean relative humidity.		Sunshine.		Wind.				
		7 a. m.	7 p. m.	Total hours.	Percentage of possible.	Total movement, miles.	Average hourly velocity.	Max. velocity.		
								Miles per hour.	Direction.	Date.
Columbia.....	29.82	84	70	234	53	4,466	6.2	19	e.	30
Hannibal.....	29.82	79	..	..	..	5,357	7.4	29	w.	19
Kansas City.....	29.82	79	64	267	60	5,930	8.2	38	sw.	12
St. Joseph.....	29.81	81	58	238	53	4,698	6.5	36	nw.	17
St. Louis.....	29.84	80	66	236	53	7,748	10.8	43	w.	17
Springfield.....	29.85	87	72	223	51	6,544	9.1	34	ee.	12
Cairo, Ill.....	29.86	87	71	..	..	5,451	7.6	28	s.	8
Keokuk, Iowa.....	29.83	79	60	214	48	4,477	6.2	26	s.	12

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR JUNE.

Year.	Temperature.				Precipitation.				Number of days.			
	Mean.	Departure.	Highest.	Lowest.	Mean.	Departure.	Greatest in 24 hours.	Total snowfall, unmelted.	With .01 inch or more.	Clear.	Partly cloudy.	Cloudy.
1888.....	72.6	-0.5	103	37	6.20	+1.26	..	0	7	..	..	..
1889.....	70.7	-2.4	100	38	4.66	-0.28	..	0	6	..	..	..
1890.....	77.2	+4.1	105	50	2.59	-2.35	..	0	6	..	..	..
1891.....	73.3	+0.2	103	46	6.94	+2.00	..	0	13	..	..	..
1892.....	74.5	+1.4	100	38	3.18	-1.76	4.25	0	7	15	9	6
1893.....	72.6	-0.5	98	42	4.61	-0.31	3.60	0	9	12	12	6
1894.....	74.5	+1.4	105	30	3.92	-1.02	3.48	0	7	16	11	3
1895.....	73.2	+0.1	100	42	5.77	+0.83	3.85	0	10	12	11	7
1896.....	72.5	-0.6	101	45	8.32	+3.38	5.60	0	9	12	11	7
1897.....	73.6	+0.5	102	38	6.18	+1.24	6.40	0	12	9	14	7
1898.....	75.3	+2.2	100	42	5.88	+0.94	6.05	0	9	13	12	5
1899.....	74.3	+1.2	101	42	3.87	-1.07	4.48	0	9	15	10	5
1900.....	73.3	+0.2	103	44	4.79	-0.15	5.06	0	10	12	12	6
1901.....	77.9	+4.8	110	40	2.13	-2.81	2.99	0	6	18	10	2
1902.....	70.9	-2.2	100	37	6.57	+1.63	6.08	0	12	11	10	9
1903.....	67.3	-4.2	95	36	3.25	-1.69	4.90	0	9	15	9	6
1904.....	70.5	-2.6	98	45	6.42	+1.58	5.41	0	11	12	12	6
1905.....	75.2	+2.1	103	42	3.09	-1.85	4.80	0	7	15	10	5
1906.....	72.7	-0.4	101	40	4.95	+0.01	4.07	0	10	15	9	6
1907.....	71.2	-1.9	97	40	5.84	+0.90	3.90	0	11	14	10	6
1908.....	72.3	-0.8	98	43	6.30	+1.36	5.30	0	11	13	10	7
1909.....	73.9	+0.8	98	49	5.21	+0.27	4.12	0	11	11	13	6
1910.....	70.4	-2.7	99	38	3.92	-1.02	3.70	0	8	16	7	7
1911.....	78.9	+5.8	112	43	1.78	-3.16	2.07	0	6	18	8	4
1912.....	69.5	-3.6	100	42	4.78	-0.16	5.60	0	9	14	8	8
1913.....	75.4	+2.6	107	33	2.57	-2.22	3.05	0	6	18	8	4
1914.....	79.3	+6.2	106	43	2.37	-2.29	3.50	0	5	18	7	5
1915.....	70.8	-2.5	98	38	6.51	+1.87	4.86	0	12	11	10	9
1916.....	70.0	-3.2	100	42	6.99	+1.17	6.75	0	10	14	9	7
1917.....	71.0	-2.3	103	35	3.78	-0.59	4.19	0	8	19	7	4
1918.....	77.2	+3.9	110	48	3.15	-1.36	4.28	0	7	17	8	5
1919.....	75.0	+1.9	104	44	5.59	+1.11	4.21	0	11	14	10	6
1920.....	72.7	-0.5	104	41	2.35	-2.16	3.74	0	6	18	7	5
1921.....	76.6	+3.4	105	44	5.71	+1.15	4.14	0	12	12	10	8
1922.....	76.5	+3.1	108	43	1.66	-2.89	2.30	0	5	19	8	3
1923.....	73.5	+2.2	103	45	5.48	+1.02	4.42	0	11	14	9	7
1924.....	72.5	-1.0	101	38	7.39	+2.72	4.39	0	14	..	..	..
1925.....	76.5	+3.0	103	46	6.16	..	..	..	..	..	..	..
1926.....	70.0	-3.2	100	42	6.99	..	..	..	..	..	..	..

Climatological Data for June, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.							Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.	Partly cloudy.	Cloudy.		
Northeast Plain.																				
Brunswick	Chariton	652	48	67.7	- 5.5	86	18	49	6	31	9.59	+4.40	2.26	0	14	12	3	15	O. K. Benecke	
Clifton Hill	Randolph	731	28	68.0	- 7.0	85	8†	44	6	30	7.58	+3.24	1.77	0	14	11	10	9	Dr. A. J. Bradsher	
Columbia	Boone	784	37	66.6	- 6.2	85	18	47	6	27	14.86	+10.48	5.83	0	19	5	9	16	U. S. Weather Bureau	
Downing	Schuyler	876	6	66.8	.....	84	8†	48	6†	30	12.74	+8.36	7.02	0	13	8	16	6	James Taylor
Fayette	Howard	661	47	66.6	- 6.7	88	8	44	6	34	10.14	+5.60	2.20	0	15	...	...	...	J. D. Settle
Fulton	Callaway	818	39	67.3	- 6.3	85	9†	48	6	25	10.02	+5.82	2.25	0	17	2	21	7	Chamber of Commerce	
Gorlin	Scotland	700	40	...	.....	...	...	...	...	...	6.23	+2.32	2.47	0	10	2	7	21	J. W. Pulliam
Hannibal	Marion	534	35	67.0	- 5.5	85	18	50	2	27	5.08	+1.56	1.54	0	14	2	12	16	U. S. Weather Bureau	
Jefferson City	Cole	557	39	67.8	- 6.2	87	8	49	4	29	8.80	+4.78	2.65	0	15	10	11	9	Miss Emma Swift	
Kirkville	Adair	969	38	66.7	- 5.5	85	18	46	6	30	6.79	+2.52	3.10	0	6	11	6	13	Prof. J. S. Stokes	
Louisiana	Pike	469	33	...	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	Stark Bros. Nurseries
Macon	Macon	875	28	66.2	- 6.8	85	18	45	6	31	7.53	+3.12	1.75	0	14	4	16	10	W. C. Brown	
Mexico	Andrain	800	38	67.1	- 6.6	86	8†	47	6	31	13.17	+8.39	7.34	0	12	15	2	13	Mrs. Abbie Snoddy	
Monroe City	Monroe	748	6	...	.....	...	...	...	...	...	6.72	.....	2.43	0	12	14	5	11	J. S. Conway
St. Charles	St. Charles	456	39	68.4	- 5.8	88	8†	49	6	30	7.96	+4.00	2.00	0	11	5	14	11	L. C. Saeger	
St. Louis (1)	St. Louis City	568	53	68.6	- 6.4	88	19	51	6	24	7.25	+3.43	3.00	0	12	4	13	13	U. S. Weather Bureau	
St. Louis (2)	do.	578	15	68.2	- 6.7	88	19	51	4†	25	7.30	+3.54	1.68	0	14	8	13	9	St. Louis University	
Shelbina	Shelby	779	34	...	.....	...	...	...	...	...	6.67	+1.96	1.68	0	15	...	...	...	J. C. Jewett
Steffenville	Lewis	650	29	66.9	- 6.3	84	18	47	3†	31	6.56	+2.46	1.35	0	10	9	14	7	Frank Hall	
Unionville	Pulham	1,062	34	65.7	- 6.1	84	14†	45	2†	35	9.50	+4.82	4.25	0	14	8	7	15	Geo. W. Davis	
Warrenton	Warren	816	45	67.8	- 5.8	86	18	48	6	28	10.70	+6.74	4.13	0	13	6	12	12	Prof. A. W. Ebeling	
Keokuk, Iowa	Lee, Ia.	614	55	66.8	- 5.7	85	21	50	6	26	5.15	+1.02	1.56	0	12	4	7	19	U. S. Weather Bureau	
Section means and extremes				67.1	- 6.2	88	8†	44	6	35	8.59	+4.43	7.34	0	13	7	11	12		
Southeast Lowlands.																				
Campbell	Dunklin	314	2	71.2	.....	87	18†	47	7	34	13.11	.....	2.67	0	17	5	13	12	Jeff. King
Caruthersville	Pemiscot	265	31	72.7	- 5.1	86	19†	45	3†	30	10.90	+6.92	1.94	0	17	16	3	11	Sam Smith	
Doniphan	Ripley	344	23	70.0	- 4.8	90	19	45	7	30	12.90	+8.52	2.80	0	16	4	20	6	W. W. Martin	
Jackson	Cape Girardeau	428	36	68.8	- 5.3	88	19	44	7	35	22.00	+17.71	3.96	0	16	2	7	21	John G. Putz	
Marble Hill	Bollinger	470	32	69.5	- 4.4	88	19	45	7	29	20.70	+16.53	3.40	0	14	2	15	13	It. A. DeWitt	
Morehouse	New Madrid	289	26	...	.....	...	...	...	...	...	17.16	+13.28	2.76	0	17	12	12	6	John A. Spence
Poplar Bluff	Butler	339	23	70.6	- 4.8	89	19	46	7	34	14.93	+9.91	4.00	0	13	11	9	10	J. H. Wolpers	
Sikeston	Scott	318	22	71.2	- 3.3	88	19	51	7	25	16.88	+13.00	3.30	0	17	6	12	12	Glen R. Fisher	
Cairo, Ill.	Alexander, Ill.	358	52	70.8	- 5.5	87	19	55	7	23	15.70	+11.87	4.42	0	19	1	12	17	U. S. Weather Bureau	
Section means and extremes				70.6	- 4.7	90	19	44	7	35	16.03	+12.22	4.00	0	16	7	11	12		
Oark Plateau.																				
ArCADIA	Iron	926	46	64.9	- 7.1	85	19	43	7	29	14.04	+9.46	3.08	0	17	15	5	10	ArCADIA College	
Aurora	Lawrence	1,370	37	68.0	- 5.8	86	18	48	6	27	18.07	+13.09	2.96	0	21	3	13	14	W. T. Troughton	
Birehtree (near)	Shannon	1,000	32	67.6	- 5.1	87	21	45	7	32	13.56	+9.03	3.15	0	14	7	10	13	V. H. Kirkendall	
Bolivar	Polk	1,071	33	68.4	- 4.4	84	18†	54	14	25	14.45	+9.43	4.38	0	17	14	7	9	Southwest Baptist College	
Dean H.	McDonald	1,000	28	69.5	- 3.5	88	18	44	c	35	13.67	+8.40	3.81	0	19	16	4	10	H. E. Dean	
Eldon	Miller	924	31	67.3†	- 5.9	89	20†	47	6	31	8.74	+4.49	2.25	0	15	0	20	10	E. H. Shepherd	
Farmington	St. Francois	918	16	66.8	- 5.8	88	19†	47	27	33	13.94	+9.31	2.78	0	16	5	16	9	Robert Forsyth	
Goodland	Iron	1,000	33	66.0	- 6.1	86	21	41	7	36	11.24	+7.14	2.00	0	17	4	12	14	R. M. Adams	
Greenville	Wayne	381	5	67.3†	.....	85	18†	43	7	35	19.31	.....	3.00	0	18	7	8	15	Wm. P. Owens
Hailey	Barry	1,350	2	...	.....	...	...	...	...	...	11.76	.....	1.90	0	16	7	6	17	A. W. Madison
Koshkonong	Oregon	958	26	68.8†	- 5.5	86	18	48	7	31	13.45	+8.97	2.80	0	14	3	10†	15†	R. M. Hitt	
Lebanon	Laclede	1,265	39	65.6	- 7.5	86	19†	45	6	35	14.51	+9.58	3.85	0	18	12	7	11	Mrs. Lou Mulcare	
Lockwood	Dade	1,078	21	68.7	- 5.3	86	7†	45	6	30	11.15	+6.35	4.80	0	13	7	8	15	C. S. Crow	
Mountain Grove (near)	Wright	1,463	26	66.6	- 5.0	88	21	40	6	36	13.31	+8.75	2.04	0	20	6	12	12	Mo. Fruit Exp. Sta.	
Neosho	Newton	1,011	39	68.6	- 5.3	88	9	45	6	30	13.89	+8.46	4.05	0	21	12	13	5	U. S. Fisheries Sta.	
Rolla	Phelps	1,099	27	67.4	- 5.4	86	18†	48	c	25	8.18	+4.05	1.72	0	17	10	11	9	Prof. Elmo G. Harris	
Salem (near)	Dent	1,173	23	65.6	- 7.2	85	18†	46	6†	28	10.91	+6.61	2.55	0	15	8	7	15	A. C. Leech	
Seymour	Barry	1,542	25	67.5†	- 5.0	86	21	46	6	29	14.77	+11.24	2.41	0	18	7	11†	11†	Floyd E. Fawver	
Seymour (near)	Webster	1,612	21	65.4	- 6.6	85	13	45	6	29	16.09	+11.46	3.65	0	15	7	9	14	Ira H. Hailey	
Springfield	Greene	1,324	39	66.8	- 5.7	87	18	49	6	23	12.27	+7.08	3.54	0	17	11	12	7	U. S. Weather Bureau	
Section means and extremes				67.2	- 5.7	89	20†	40	6	36	13.37	+8.49	5.85	0	17	8	10	12		
Southwest Plain.																				
Amoret	Bates	831	20	...	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	Andrew Rood
Appleton City	St. Clair	853	33	68.4	- 6.4	89	21	48	4†	30	7.36	+2.37	2.20	0	14	5	22	3	W. G. Bigelow	
Centerview	Johnson	872	40	69.0	- 5.2	89	21	47	4	28	5.73	+0.97	1.25	0	14	10	12	8	E. A. Markey	
Clinton	Henry	765	34	67.2	- 6.2	84	20	50	4	26	7.06	+2.33	1.56	0	17	7	16	7	A. E. Derwent, M. D.	
Harrisonville	Cass	904	50	67.0	- 6.4	90	21	47	4†	32	5.43	+0.97	0.87	0	15	2	2	26	John H. Patterson	
Lamar	Barren	980	40	68.5	- 5.9	86	18	49	6	27	11.26	+6.30	3.50	0	18	12	9	9	Jesse A. Mann	
Lamotte	Pettis	867	26	68.8	- 5.5	89	21	47	6	31	8.16	+3.67	2.60	0	20	16	10	4	J. E. Wheeler	
Marshfield	Saline	779	38	...	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	Dr. W. H. Black
Nevada	Vernon	802	34	69.8	- 3.8	91	21	49	4	33	13.82	+8.71	2.83	0	13	9	11	10	George A. Kaupp	
Warsaw	Benton	687	27	68.6	- 5.1	88	21	47	7	35	6.00	+0.83	0.86	0	16	8	14	8	Everett Martin	
Section means and extremes				68.3	- 5.6	91	21	47	4†	35	8.44	+3.60	3.50	0	16	8	12	10		
Northwest Plateau.																				
Bethany	Harrison	916	35	67.0†	- 5.4	84	14†	40	7	40	7.86	+3.38	2.85	0	13	2†	15†	12†	M. H. Moulton	
Chillicothe	Livingston	779	18	67.0	- 7.2	87	20	43	6	37	9.71	+4.64	3.31	0	15	11	7	12	Wm. J. Olenhouse	
Conception	Nodaway	980	38	67.0	- 4.6	88	21	48	6	30	9.35	+4.80	3.45	0	13	3	14	13	Fr. Adolphus Hess	
Edgerton	Platte	856	7	66.8†	.....	87	20	43	2	40	7.14	+2.03	2.50	0	15	15			

Daily Precipitation for June, 1928

Stations.	Drainage-basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Northeast Plain.																																		
Boonville	Missouri	.13	.05		.20	.18			.23	.06			.22					.57	.64		1.48	.42	.03	.26	.33	.06			2.46	.36			9.77	
Brunswick	Grand	.24			.08	.23	.02		.25				.42					.02	.70		2.26			.40	.28	.25			.85	1.59			9.59	
Clifton Hill	Chariton				.10	.25			.17				.10	.40				.03	.05	1.22	1.63	.40	.25	.31				.93		.14		7.58		
Columbia	Missouri	.03		.24	.05	.32	T.	.10	.26		T.		.11	.26				.03	1.29	T.	4.79	1.04	T.	.20	.13	.01		.13	3.46		.27	14.86		
Downing	Mississippi				.07	.45			.15				.18					T.	4.02	3.00	.04	.03	1.00	.40	1.50				.44	.05			12.74	
Payette	Missouri	.96		.21	.17				.20				.15	.07					.32	.59	1.50	1.65		.31	.19	.02			1.60		.20		10.14	
Fulton	do	.13		.50	.35	.02			.17	.07	.02		.18						.85	.50		2.25	.11		.18	.02	.24		2.20	.65			10.02	
Gorin	Mississippi		.04		.27				.18				.31					2.47			.07	.23		.52					.31				6.23	
Hannibal	do		.20		.10	.06		.62	.44			T.	.06					1.54	T.	.50	.17	T.	.04	.56				.02	.76		.01		5.08	
Hermann	Missouri	.10	.33		.72	.24	.52	.01	1.45	1.10			.20						.37	.65		2.85	.95		.42		.15		1.70	.23			11.99	
Jefferson City	do	.25			.15	.27			.92	.92			.28						.38	.53		2.65	.21		.28	.15	.10		.96	.75			8.80	
Kirkville	Mississippi							.22	1.70				.22					3.10						.90					.65				6.79	
Louisiana	do																							.10			.10		.40	.62				
Macon	Chariton	.20			.12	.36		T.	1.35				.39						.35	.80		1.75	.50	T.	.12	.70	.10		.68	.11			7.53	
Mexico	Mississippi				.44	.17	.13		.17				.40						.46	.51		7.34	.10		.18				.66	1.00			13.17	
Milau	Grand				.08	.25			.20				.50						1.05	1.85	.72	.28	.15	.50		.35	.08		.75				8.56	
Monroe City	Mississippi		.15	T.	.13	T.			.24	.43			.04						.41	.92	.68	.44	.44		.39				.67		.02		6.72	
Pacific	Meramec	1.02	.88		.72	.40	.14		.74	.48			1.10						.10	.60		3.90	1.27		.19		.08		2.15	.20			13.97	
St. Charles	Missouri	.09		T.	.75	.56			.10	1.29			.67						.10	.69	.61	2.00	.17	.09	T.				.60		T.		7.96	
St. Louis (1)	Mississippi	.16		.63	.05	.44		T.	.96		T.		.62	.28				T.	.40		2.45	.55			.11	T.			.60		T.		7.25	
St. Louis (2)	do	.20		.66	.06	.50		T.	.95	.02	T.		.71	.28					.41		1.68	1.14		.02	.03	T.			.64				7.30	
Shelbina	do	.29			.05	.12	T.	.02	1.68				.50						.75	.79		.85	.48		.32	.15	.15		.51	.01			6.67	
Steffenville	do			T.	.05	.20	T.		1.35				.32						.75	.82	.65	.45		T.		1.12			.85				6.56	
Union	Meramec	.06	.30		.97	.45	.26	.04	.72	.67			.79						.16	.52		3.20	1.60		.03		.04		1.66	.26			11.73	
Unionville	Chariton			.20	.05	.50	T.	T.	1.25				.50	.30					15	3.55	.70		1.50	.60	.55	.30			.70				9.50	
Warrenton	Mississippi	T.		T.	.44	.60			2.00	.71	T.		.16						.30	.80		10.4	13	.15	.15	.04				1.12				10.70
Keokuk, Ia.	do			T.	.02	.20	.01	1.56					.12						T.	1.01	.72	.12	.01	T.	.22		.34			.82				5.15
Southeast Lowlands																																		
Campbell	St. Francis	.12		1.33	2.67	.01			2.00			.08	.38	1.37	.68				.80	.04			1.32		.62				.13	1.40	.01		13.11	
Cape Girardeau	Mississippi	.15	.13	.03	2.09	.04			.52	2.95	.02		.23	2.04	.26				.55	2.91		.37	2.46		.82	.38	.35		1.47	2.50			20.04	
Caruthersville	do			1.15	1.94				1.19		.23	.29	1.00	1.10					.58		.14	1.40		.57	.25	.08		.21	.25	.02	.50		10.90	
Dexter	St. Francis			.04	.84		.17		.40	1.86		.08	.02	1.22	.24				.06	.58	.11		1.62		.72		.35		1.17	.44	.26		14.18	
Douglas	Black			.28	.80	.50			.42	1.87	.05		.24	.45					.77	.11		.71	.77	.15	.50				1.00	.20	.50		12.90	
Jackson	Mississippi	.40		1.60	2.51	.07			.58	3.03		.09	.26	2.30					.50	2.72		3.96	.34	.39	.27	.52			2.72				22.00	
Marble Hill	Mississippi	.10		1.30	1.80				.65	2.12		.20	3.06						1.05	3.40		3.17	.35	.20	.60				1.70				20.70	
Morehouse	do	.51		.27	.42	T.			.32	1.90		.06	1.58						.67	.80		1.28	.69	2.24	2.30	.35	T.		1.55	1.62	.08		17.16	
New Madrid	do	.50	.10	.25	5.50	.15			2.22		.10	.40	.38	1.65	.83				.80	.20		1.28		2.60		.36			.10	.90	.40		15.72	
Poplar Bluff	Black	.19			4.00				.22	2.21		.21	2.12	.27					.93	.14		1.57		1.18		T.			.10	1.83			14.93	
Sikeston	Mississippi	.05		.26	.07	3.30	.05		1.99		.07	.05	1.02	.35					.43	.14		1.8	1.73		2.01		.39		1.90	1.58			16.88	
Cairo, Ill.	do	.28		2.06	.05	.02			.38	1.88		.01	.04	1.61	1.09				.39	1.61		2.23	.34	.63	.01	.10	T.		.41	.01	T.		15.70	
Ozark Plateau.																																		
Arcadia	St. Francis	.16	.21	T.	1.02	.10	.03	T.	1.01	2.09			3.08	T.					.24	.98		1.48	.85		.43	.23	.03		.55	1.55			14.04	
Aurora	Neosho	1.17		.85	.14	.07			.17	2.74		.09	.07	.42		.06			.52	2.96		2.38	1.44	.19	2.62	.09	T.		.81	.14	.98		18.07	
Birehtree (near)	Black	.36		1.28	.23				.86	3.15			3.14						.09	.45	.15		.78	.95	.75				.94		.40		13.56	
Bolivar	Osage	.34		.57	.09	.11			.70	3.05	.01		.35						1.27	.71		.41	.08	.46		.43	.08		1.38		.47		14.45	
Caplinger Mills	Osage	.19		.43	.23	.06			1.19	2.01	.03		.58	.12					1.26	1.11	T.	.46	T.	.47				T.	3.63		.34		12.62	
Dean	Neosho	3.81		.45	.27	.04			1.51	1.00	T.		.23	.32		1.60			.38	1.18	.65		.64	.23	.50	T.	1.01	T.	.08	.38		.40	13.67	
Eldon	Missouri	.45		.48					1.30	2.25			.35						.30	.65		.29	.50	.25	.14	.19	.28		.49	.82			8.74	
Farlington	St. Francis	.10		.24	.94	.04			1.52	2.35			1.90						.23	.55		2.78		.35	.28	.02			2.35		.06		13.94	
Fredericktown	do		.15		1.30	.15			.70		.25		1.80						1.45	1.10		.80	.75	.130	.65		.15		.38		1.20		12.13	
Galea	White	1.05	.62		1.10	.10			1.32	.00		.75	1.92						1.00	2.00			3.32		.14	.15			.15	.62			15.05	
Goodland	Black	.20		.31	.70	.10			1.12	2.00		1.55							.40			1.10	.20	.37	.50	.20	.05		1.99	.10	.35		11.24	
Greenville	St. Francis	.06		1.85	1.03				.50	2.81		.19	2.50						.60	2.10		1.63	.80	.55	.90	.28	.16							

Daily Temperatures for June, 1928

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
Northeast Plain.																																	
Brunswick §§.....	81	81	66	62	58	76	81	85	73	74	76	81	72	84	84	83	80	86	75	83	82	80	81	70	74	76	81	79	77	75	77.2		
Minimum.....	58	50	58	52	49	52	61	61	55	57	60	59	55	61	62	63	62	64	66	66	68	68	57	58	54	55	53	58	62	59	..	58.2	
Columbia.....	79	77	63	56	56	72	79	84	74	70	75	80	70	80	80	83	85	82	80	82	79	76	71	68	73	78	80	75	72	..	75.3		
Minimum.....	58	51	50	49	51	47	52	61	56	53	56	68	58	55	58	62	64	67	66	69	63	57	58	54	54	53	64	61	59	..	57.9		
Fayette.....	82	80	66	63	58	76	80	88	75	74	77	80	79	85	85	80	84	86	81	80	84	84	80	77	71	77	80	80	78	74	..	78.1	
Minimum.....	57	48	55	47	50	44	47	59	59	50	54	57	56	51	55	60	63	60	64	63	64	62	53	56	52	51	46	57	59	55	..	55.1	
Hannibal.....	80	73	66	58	57	72	78	84	71	71	77	82	73	83	81	79	85	85	84	79	84	81	78	69	63	76	77	77	76	78	..	75.9	
Minimum.....	64	50	50	50	52	52	61	53	52	54	68	60	56	61	61	64	64	65	66	68	62	58	58	54	53	54	65	62	60	..	58.2		
Jefferson City §§.....	78	78	60	56	57	76	80	87	76	71	78	80	72	82	82	81	83	85	86	84	86	82	81	73	68	74	80	80	79	75	..	77.0	
Minimum.....	60	55	58	49	52	50	51	60	61	54	57	61	60	54	60	62	63	65	65	65	69	58	61	54	55	53	62	65	58	..	58.7		
Kirksville.....	80	78	72	63	65	73	79	82	74	72	76	80	70	84	82	79	79	85	81	81	84	81	78	72	68	76	77	73	78	73	..	76.5	
Minimum.....	61	49	59	51	49	46	52	59	57	52	51	52	55	54	57	59	63	59	69	66	61	64	71	57	52	49	54	63	60	56	..	56.9	
Louisiana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	80	..	..	..	..	..	78	76	78	80	76	78	..	..	..
Minimum.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	68	60	60	58	60	52	54	44	42	40	58	56	45	..	..
Macon §§.....	80	78	70	64	56	76	80	84	74	76	75	80	71	83	82	80	80	85	77	79	82	80	79	70	67	76	79	77	78	78	..	76.5	
Minimum.....	56	49	56	51	50	45	50	58	57	52	51	50	58	54	59	60	60	59	64	65	64	64	54	58	53	49	53	61	62	57	..	56.0	
Mexico §§.....	80	75	64	56	57	74	80	86	75	72	73	81	73	82	83	85	86	85	79	83	81	80	72	66	73	82	79	73	73	..	76.6		
Minimum.....	59	50	55	48	51	47	51	60	61	54	55	64	60	54	57	59	63	67	67	64	65	67	56	61	54	52	51	61	64	56	..	57.6	
St. Louis (1).....	77	76	64	58	63	69	79	85	76	68	78	83	76	80	80	81	83	85	88	79	87	83	79	75	65	73	78	78	76	80	..	76.7	
Minimum.....	63	59	51	51	54	51	55	61	59	56	59	66	62	60	64	60	62	62	65	65	69	70	62	62	57	58	60	64	67	62	..	60.5	
Unionville.....	78	80	70	70	62	75	78	80	72	75	75	80	70	84	83	80	76	82	84	84	84	80	78	72	67	78	78	78	80	80	..	77.1	
Minimum.....	57	45	54	54	48	45	53	58	54	47	50	60	55	50	55	58	50	57	70	65	58	62	62	50	50	48	52	60	58	54	..	54.3	
Warrenton.....	78	77	74	58	58	70	80	85	74	71	81	82	79	82	83	83	85	86	84	83	85	79	75	69	73	80	75	74	77	..	77.3		
Minimum.....	62	54	53	49	52	48	52	60	62	52	56	65	59	56	60	58	64	62	66	64	67	65	79	61	54	53	54	63	64	57	..	58.4	
Southeast Lowlands.																																	
Campbell.....	83	79	70	79	73	73	81	83	80	78	79	85	77	83	85	85	82	87	87	85	84	86	84	83	79	80	82	80	87	79	..	81.3	
Minimum.....	63	60	56	57	61	51	47	65	63	57	61	64	62	57	61	61	65	69	72	67	65	65	62	63	57	52	55	66	67	60	..	61.0	
Caruthersville.....	78	80	81	74	75	72	84	80	80	75	76	83	83	80	83	82	84	85	86	86	81	82	80	82	77	80	78	82	86	83	..	80.6	
Minimum.....	72	65	54	62	67	54	54	68	64	62	64	68	63	60	65	65	66	70	75	68	67	69	65	66	61	56	63	69	72	65	..	64.8	
Doniphan.....	77	79	75	68	74	82	85	87	74	85	89	79	83	84	87	85	88	90	82	85	84	82	82	72	81	81	80	89	76	..	81.3		
Minimum.....	55	59	55	58	55	46	45	65	64	58	58	54	49	55	60	62	64	66	66	63	65	64	62	61	53	53	55	65	70	60	..	58.8	
Jackson.....	76	78	75	69	74	71	79	83	80	74	83	81	79	82	83	81	85	88	85	80	84	78	80	71	77	80	76	83	81	..	79.2		
Minimum.....	61	57	54	53	57	49	44	64	61	52	57	63	61	56	56	56	64	62	71	62	64	64	61	59	56	54	50	62	66	55	..	55.4	
Poplar Bluff.....	79	80	73	74	72	74	80	82	81	74	75	83	78	82	82	82	82	82	87	89	82	83	83	83	80	72	80	80	80	87	81	..	80.0
Minimum.....	63	59	60	56	61	50	46	66	64	58	61	65	63	56	59	60	66	69	73	71	66	64	63	61	57	51	54	67	67	60	..	61.2	
Sikeston.....	79	78	76	79	74	72	79	83	82	78	78	84	82	83	80	83	83	85	88	84	84	85	82	81	77	79	80	79	86	80	..	80.8	
Minimum.....	64	62	55	59	62	52	51	65	62	57	56	65	63	61	61	59	64	65	73	65	65	66	62	65	59	55	55	77	71	58	..	61.5	
Cairo, Ill.	77	77	69	79	73	70	78	81	78	72	74	84	70	79	80	83	82	85	87	78	81	84	79	78	70	77	79	78	84	79	..	78.2	
Minimum.....	66	65	55	59	60	55	55	66	63	57	62	65	64	63	65	64	67	64	76	64	68	65	66	65	61	59	62	67	68	64	..	63.3	
Ozark Plateau.																																	
Arcadia §§.....	72	75	58	62	65	69	76	81	76	68	70	80	76	76	75	77	80	84	85	74	82	77	76	75	62	73	74	76	79	73	..	74.2	
Minimum.....	58	53	52	51	51	43	49	52	60	51	55	58	59	52	53	53	59	61	70	62	63	64	60	58	55	51	46	55	60	53	..	55.6	
Aurora.....	74	75	73	62	62	75	81	83	82	75	75	73	73	76	76	76	81	86	85	80	85	83	81	78	75	71	77	80	80	70	..	77.0	
Minimum.....	61	57	54	51	54	48	56	61	60	57	57	65	62	53	61	60	60	61	72	63	61	62	58	57	55	55	57	62	66	65	..	59.0	
Birchtree.....	70	79	76	61	65	70	77	83	77	68	69	80	75	80	80	79	79	86	84	79	87	80	83	76	67	76	76	80	80	70	..	76.4	
Minimum.....	60	55	56	51	56	47	45	61	61	59	58	65	61	54	59	61	62	66	70	64	64	63	63	58	57	51	53	64	69				

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., JULY, 1928. No. 7.

GENERAL SUMMARY.

July, 1928 was normal in warmth and sunshine and quite dry. Up to the 29th, when rather general rains added materially to the monthly total, many sections had received a little more than one-half their July quota of rain. The first ten days of the month were the hottest of the summer. This was in marked contrast to June, the second coolest on record. After about the 10th temperatures varied a little above or below normal, with a second hot spell from the 18th to the 22d and a cool period on the 28-29th.

While the temperatures were unpleasant physically during much of the month, especially at night, the weather features were almost ideal from the farmer's standpoint. During the month crop prospects made remarkable improvement. With a cool and dry spring, followed by a very cool and wet June, the month opened with wheat and oat prospects poor, corn backward and much replanting necessary, fields foul with weeds, and farm work generally behind. At the close of July, wheat and oat yields and quality were exceeding all previous estimates, corn prospects were the best in perhaps 20 years and all other crops in excellent condition. The hot and open weather of July, following the wet, cool June, and followed in turn by the fine rains of early August made a sequence of weather unusually favorable for agricultural interests.

TEMPERATURE.

The monthly mean temperature for the State, 66 stations reporting, was 77.2°, the normal value. The first ten days averaged about 6° above normal, being the hottest period of the summer. Clinton, Henry County, recorded the extreme highest, 102°, on the 21st; 7 stations recorded maxima of 98° or higher, and 53 stations had 94° or higher. The lowest was 48° at Louisiana, Pike County, on the 28th. Temperatures of 90° or higher occurred on an average of 14 days, varying from 11 days in the north to 19 days along the southern border.

PRECIPITATION.

The average precipitation for the State, 98 stations reporting, was 2.97 inches, or 1.08 inches less than the 56-year average. The month was really drier than the totals indicate, many stations having less than 60 per cent the normal rainfall up to the rains of the 30-31st. With the soil saturated at the opening of the month, however, the rainfall generally served current soil moisture needs. The rain of the last two days and the first few days of August were most timely though, and came just when the main corn crop was filling the ears, a critical time with corn when much moisture is required. The rainfall of the month was of the local shower type with wide variations in amounts. Though generally light some generous amounts occurred and the showers were fairly well distributed through the month. The greatest monthly amount was 7.02 inches at Grant City, Worth County, and the least was 0.34 inch at Morehouse, New Madrid County. Monroe City recorded 3.30 inches on the 22d, the greatest amount in any 24 hours. There were a few reports of damage from hail and thunder squall winds but the losses were generally small; these are listed under remarks from observers.

MISCELLANEOUS PHENOMENA.

Aurora.—Brilliant on 7th, visible all over the State.
Hail.—On 10-11th at Steffenville, Centerville, Clinton, Bethany, Lexington, and Lamonte. Hailstones generally small and damage slight. Considerable damage vicinity

of Lamonte, but most of this due to associated squall wind.

Halos, solar.—11th, 12th, 14th, 20th, 21st, and 25th.

Halos, lunar.—24th, 28th, and 31st.

Thunderstorms.—General on 8th, 10th, 11th, 12th, 19th, 21st, and 31st. Local on 4th, 5th, 7th, 9th, 18th, 26th, 27th, and 30th.

OBSERVERS REMARKS—WINDS, HAIL, ETC.

Brunswick.—On the 10th, 6:30 to 7 p. m. a strong wind damaged houses and other buildings, trees, and crops.

Clifton Hill.—A 7-inch rain reported a few miles south on 21st.

Downing.—Small damage to buildings and trees from wind on 9th.

Steffenville.—Hail and high wind on 10th did some damage.

Farmington.—Gardens, late potatoes, and late corn suffered from drouth but fine rain of 31st helped greatly.

Lebanon.—Crops needing rain but good rains have fallen near here.

Lockwood.—High wind on 11th, damage small.

Appleton City.—Wind midnight 10–11th damaged trees, and power lines.

Centerville.—Hail on 11th did slight damage.

Clinton.—Hail and wind on 11th, very little damage done.

Lamonte.—Much damage by wind and hail on 11th to crops and buildings.

Nevada.—Severe electric storm from northeast on 11th uprooted trees and wrecked one of our greenhouses.

Warsaw.—Very fine rain 31st worth thousands of dollars to corn crop.

Lexington.—Moderate hail on 11th, damage mostly to crops.

O. R. R.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations	Mean barometric pressure (Sea-level)	Mean relative humidity		Sunshine		Wind					
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total move- ment miles	Average hour- ly velocity	Max. velocity			Date
								Miles per hour	Direction		
Columbia.....	29.97	84	66	335	74	3,789	5.1	23	s.		11
Hannibal.....	29.97	82	66	360	86	4,524	6.1	35	se.		5
Kansas City.....	29.95	78	56	360	86	4,524	7.3	31	ne.		10
St. Joseph.....	29.94	84	66	310	68	4,321	5.5	34	se.		10
St. Louis.....	29.95	74	59	312	69	6,305	5.5	34	e.		5
Springfield.....	30.01	81	60	362	81	5,617	5.5	30	sw.		11
Cairo, Ill.....	30.00	82	62	...	...	3,903	5.2	25	nw.		31
Keokuk, Iowa.....	29.98	79	58	345	76	3,800	5.1	27	sw.		19

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR JULY.

Year	Temperature				Precipitation			Number of days			
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With 0.1 inch or more	Clear	Partly cloudy
1888.....	79.3	+2.3	111	50	3.31	-0.98	.....	0	7	...	...
1889.....	77.1	+0.1	107	46	3.75	-0.54	.....	0	8	...	...
1890.....	79.6	+2.6	106	52	2.98	-1.31	.....	0	5	...	...
1891.....	72.7	-4.3	103	40	3.55	-0.74	.....	0	8	...	...
1892.....	75.8	-1.2	101	45	4.99	+0.70	4.75	0	8	12	10
1893.....	77.3	+0.3	101	51	4.91	+0.62	6.44	0	8	14	12
1894.....	76.5	-0.5	109	42	2.48	-1.81	4.90	0	5	18	10
1895.....	74.4	-2.6	106	45	6.79	+2.50	6.52	0	10	10	12
1896.....	77.3	+0.2	108	48	5.87	+1.58	8.00	0	9	15	11
1897.....	78.7	+1.7	106	48	3.22	-1.07	4.05	0	6	19	9
1898.....	76.1	-0.9	104	42	5.58	+1.29	8.15	0	9	16	10
1899.....	76.0	-1.0	102	43	4.51	+0.22	4.48	0	9	15	11
1900.....	76.9	-0.1	102	46	4.11	-0.18	7.03	0	8	17	10
1901.....	85.4	+8.4	116	46	2.02	-2.27	3.78	0	5	19	10
1902.....	77.0	0.0	103	50	4.59	+0.30	5.30	0	8	17	11
1903.....	77.4	+0.4	102	51	3.22	-1.07	3.26	0	18	17	10
1904.....	74.2	-2.8	100	47	4.65	+0.36	4.15	0	10	15	11
1905.....	73.4	-3.6	101	48	7.45	+3.16	7.60	0	2	12	10
1906.....	74.7	-2.3	100	48	3.53	+0.76	4.46	0	8	17	10
1907.....	78.4	+1.4	105	47	4.57	+0.28	6.70	0	8	19	8
1908.....	76.5	-0.5	101	49	2.23	-2.06	2.65	0	8	18	9
1909.....	76.7	-0.3	102	41	6.41	+2.12	10.71	0	10	17	8
1910.....	76.8	-0.2	109	46	6.70	+2.41	5.80	0	9	16	9
1911.....	78.0	+1.0	113	43	3.35	-0.34	4.20	0	8	16	9
1912.....	78.8	+1.8	104	52	2.74	-1.55	3.17	0	7	18	9
1913.....	80.2	+3.2	105	47	3.13	-1.16	3.62	0	7	18	9
1914.....	80.5	+3.7	109	45	2.67	-1.66	4.45	0	17	17	9
1915.....	74.6	-2.4	102	42	6.05	+1.59	6.77	0	2	14	9
1916.....	81.6	+4.6	109	52	1.25	-3.15	2.55	0	3	25	5
1917.....	77.5	+0.2	107	42	2.96	-1.22	3.40	0	8	20	8
1918.....	77.1	+0.2	110	41	1.76	-2.49	3.75	0	6	19	8
1919.....	80.0	+2.3	115	50	2.33	-1.37	4.55	0	5	23	6
1920.....	76.3	-0.9	105	47	3.25	-0.84	3.84	0	7	18	8
1921.....	80.3	+2.9	109	46	2.32	-1.77	2.25	0	5	20	8
1922.....	76.8	-0.7	103	46	5.85	+1.52	12.25	0	8	17	9
1923.....	78.2	+0.7	105	50	3.07	-0.89	7.42	0	6	18	8
1924.....	73.3	-4.1	103	40	5.39	+1.34	7.14	0	10	15	11
1925.....	77.9	+0.5	106	46	2.71	-1.34	3.25	0	7	16	10
1926.....	78.0	+0.6	108	40	3.14	-0.91	6.00	0	7	17	9
1927.....	75.8	-1.6	101	48	4.13	+0.08	4.65	0	8	18	9
1928.....	77.2	-0.2	102	48	2.97	-1.08	3.30	0	7	17	10

Climatological Data for July, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., at inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain.																				
Brunswick	Chariton	652	48	78.2	+ 2.5	97	5†	57	28	30	2.59	-2.05	1.10	0	7	17	5	9	sw.	O. K. Benecke
Clifton Hill	Randolph	731	28	75.9	+ 0.5	92	5†	54	28	30	2.33	-1.55	0.61	0	6	22	6	3	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	77.2	+ 0.3	94	5	58	30	28	3.72	+0.07	1.98	0	7	15	8	8	s.	U. S. Weather Bureau
Downing	Schuyler	876	6	75.6	.....	96	20	54	28	26	6.08	+1.15	2.57	0	9	20	10	1	s.	James Taylor
Fayette	Howard	661	47	76.6	+ 0.8	96	5	55	14†	34	4.77	+1.12	1.55	0	5	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	77.8	+ 0.1	95	20	57	30	30	2.07	-1.92	0.53	0	9	9	19	3	.....	Chamber of Commerce
Gorin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	4.25	+0.22	1.08	0	9	10	13	8	se.	J. W. Pulliam
Hannibal	Marion	534	35	77.8	+ 1.0	95	19	59	30	26	2.76	-0.99	0.94	0	8	13	10	8	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	77.9	+ 0.2	96	18†	58	30†	28	3.10	-0.35	0.87	0	8	24	3	4	s.	Miss Emma Swift
Kirksville	Adair	969	38	75.9	+ 0.2	93	5†	56	30	27	3.09	-1.36	2.60	0	4	22	6	3	sw.	Prof. J. S. Stokes
Louisiana	Pike	469	33	74.2	+ 2.2	96	3	48	29	38	1.90	-1.22	0.70	0	11	14	17	0	s.	Stark Bros. Nurseries
Macon	Macon	875	28	77.6	+ 0.2	98	21	55	28	31	1.72	-2.04	0.65	0	5	18	8	5	w.	W. C. Brown
Mexico	Audrain	800	38	77.9	+ 0.6	97	19	56	28	31	1.61	-2.14	0.51	0	5	25	0	6	sw.	Mrs. Abble Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	5.57	.....	3.30	0	9	20	9	2	ne.	J. S. Conway
St. Charles	St. Charles	456	39	78.2	+ 0.1	96	5†	54	29	30	5.10	+1.87	2.16	0	4	15	11	5	s.	L. C. Saeger
St. Louis (1)	St. Louis City	568	53	79.9	+ 1.1	95	3	63	29	26	6.66	+3.68	2.91	0	4	12	15	4	sw.	U. S. Weather Bureau
St. Louis (2)	do.	578	15	79.3	+ 0.8	94	2†	63	29	25	4.77	+2.02	1.80	0	5	16	12	3	s.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	2.40	-1.76	1.48	0	9	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	77.1	+ 0.9	95	3†	54	28	31	3.25	-1.18	1.25	0	8	14	14	3	s.	Frank Hall
Unionville	Putnam	1,062	34	75.3	+ 1.3	94	18	52	28†	31	5.05	+0.76	2.15	0	6	18	8	5	sw.	Geo. W. Davis
Warrenton	Warren	816	45	78.4	+ 0.6	96	3†	57	29	26	1.66	-1.76	1.21	0	4	19	11	1	sw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	77.4	+ 0.7	96	6	56	28	28	2.93	-0.48	1.44	0	7	13	7	11	s.	U. S. Weather Bureau
Section means and extremes				77.3	0.0	98	21	48	29	38	3.52	-0.38	3.30	0	7	17	9	5	s.	
Southeast Lowlands.																				
Campbell	Dunklin	314	2	78.7	.....	96	20	57	29	31	1.42	.....	0.76	0	5	14	15	2	s.	Jeff. King
Caruthersville	Pemiscot	265	31	79.0	+ 1.6	98	6	63	30	21	1.36	-2.05	0.76	0	4	25	5	1	s.	Sam Smith
Doniphan	Ripley	344	23	78.9	+ 0.7	97	5	56	29	30	3.09	-1.64	2.10	0	5	8	21	2	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	77.8	+ 0.4	94	4†	53	29	30	1.06	-2.46	0.60	0	3	10	11	10	s.	John G. Putz
Marble Hill	Bollinger	470	32	78.4	+ 1.1	97	20	53	29	31	3.15	-1.53	1.95	0	3	19	12	0	w.	It. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	0.34	-4.43	0.20	0	2	27	4	0	sw.	John A. Spence
Poplar Bluff	Butler	339	23	79.0	+ 0.3	96	5	56	29	27	1.97	-1.58	0.67	0	8	20	10	1	s.	J. H. Wolpers
Sikeston	Scott	318	22	79.5	+ 1.4	95	21	56	29	29	2.16	-2.61	1.90	0	4	17	11	3	sw.	Glen R. Fisher
Calro, Ill.	Alexander, Ill.	358	52	80.2	+ 0.6	94	4	62	29	21	1.43	-1.64	0.93	0	6	8	17	6	sw.	U. S. Weather Bureau
Section means and extremes				79.0	+ 0.2	98	6	53	29	31	1.78	-2.24	2.10	0	4	16	12	3	sw.	
Ozark Plateau.																				
Arcadia	Iron	926	46	74.6	+ 1.3	91	4†	52	29	26	3.82	-0.42	1.20	0	7	30	1	0	w.	Arcadia College
Aurora	Lawrence	1,370	37	76.6	+ 1.2	92	3†	60	29	24	2.81	-2.55	0.90	0	5	21	7	3	sw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	76.8	+ 0.4	92	3†	50	29	30	1.56	-2.43	1.40	0	2	26	4	1	sw.	V. H. Kirkendall
Bolivar	Polk	1,071	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southwest Baptist College
Dean H.	McDonald	1,000	28	77.1 ^b	+ 0.5	96	20	58	14†	33	3.53	-0.52	1.05	0	10	22 ^b	4 ^b	3 ^b	s.	H. E. Dean
Eldon	Miller	934	31	77.2 ^a	+ 0.2	95	19†	57	29	30	4.08	+0.42	1.39	0	6	8 ^a	19 ^a	3 ^a	w.	E. H. Shepherd
Farmington	St. Francois	918	16	76.5	+ 1.2	96	5†	52	29	36	2.49	-1.06	1.48	0	5	15	13	3	sw.	Robert Forsyth
Goodland	Iron	1,000	33	75.0	+ 0.6	93	5†	50	29	29	2.01	-2.17	1.05	0	5	22	7	2	s.	F. M. Adams
Greenville	Wayne	381	5	75.8	.....	94	5†	52	29	32	2.59	.....	1.12	0	4	25	4	2	s.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	3.29	.....	1.30	0	7	18	11	2	w.	A. W. Madison
Koshkonong	Oregon	958	26	78.0	+ 0.3	94	21	58	29	27	5.29	+1.37	2.29	0	5	14	12	5	w.	R. M. Hitt
Lebanon	Laclede	1,265	39	75.9	+ 1.0	98	20†	53	14	36	1.08	-3.04	0.71	0	4	24	5	2	se.	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	77.4	+ 0.2	94	20†	57	29	26	3.38	-1.49	1.28	0	5	20	7	4	sw.	G. S. Crow
Mountain Grove (near)	Wright	1,463	26	76.8	+ 0.8	96	19	55	29	35	0.90	-3.10	0.52	0	6	21	9	1	sw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	75.8	+ 1.8	91	3†	58	14	30	6.00	+2.42	1.87	0	11	22	7	2	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	78.0	+ 0.6	96	21	56	30	27	1.75	-2.34	0.68	0	6	19	9	3	w.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	75.2	+ 1.7	93	19	52	29	30	2.15	-1.35	1.13	0	6	17	13	1	sw.	A. C. Leach
Seligman	Barry	1,542	25	76.6 ^a	+ 0.0	91	20†	59	29	26	2.66	-1.74	0.87	0	9	14	15	2	sw.	Floyd E. Fawver
Seymour (near)	Webster	1,642	21	75.0	+ 0.5	92	19†	54	29	29	3.37	-4.38	0.15	0	3	18	10	3	s.	Im H. Hailey
Springfield	Greene	1,324	39	76.6	+ 0.2	92	20	59	29	32	3.01	-1.78	2.16	0	5	22	9	0	s.	U. S. Weather Bureau
Section means and extremes				76.4	+ 0.4	98	20†	50	29	36	2.81	-0.81	2.29	0	6	20	9	2	sw.	
Southwest Plain.																				
Appleton City	St. Clair	853	33	77.6	+ 0.7	93	5†	59	28†	26	3.24	-1.39	1.40	0	7	10	20	1	sw.	W. G. Bigelow
Centerville	Johnson	872	40	79.0	+ 0.2	96	5†	53	28	32	2.99	-0.96	1.12	0	6	12	14	5	s.	E. A. Markey
Clinton	Henry	765	34	79.5	+ 2.0	102	21	60	14†	27	3.11	-0.83	1.22	0	5	14	15	2	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	76.4	+ 1.4	95	5	55	28	29	5.03	+1.25	1.48	0	8	8	4	19	sw.	John H. Patterson
Lamar	Barlow	980	40	78.0	+ 0.5	94	21†	60	29	26	4.05	-0.19	2.10	0	9	18	9	4	sw.	Jesse A. Mann
Lamotte	Pettis	867	26	78.4	+ 1.1	97	5	56	28	30	6.25	+2.25	2.54	0	9	26	3	2	s.	J. E. Wheeler
Marshall	Saline	779	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. H. Black
Nevada	Vernon	862	34	77.6	+ 2.6	94	21	59	28†	29	2.76	-1.17	1.75	0	3	15	10	6	s.	George A. Kaupp
Warsaw	Benton	687	27	78.4	+ 0.1	96	21	58	14	28	2.83	-1.47	2.08	0	3	16	14	1	s.	Everett Martin
Section means and extremes				78.1	+ 0.5	102	21	53	28	32	3.78	-0.31	2.54	0	6	15	11	5	s.	
Northwest Plateau.																				
Bethany	Harrison	916	35	77.0	+ 1.0	94	6†	50	13	29	2.87	-1.64	0.80	0	8	11	15	5	se.	M. H. Moulton
Chillicothe	Livingston	779	18	76.8	+ 3.4	97	5†	53	28	30	2.98	-1.60	1.03	0	9					

Day of month.

Except as otherwise indicated observations are generally made late in the afternoon, near sunset, and precipitation recorded is for the 24 hours ending at the time of observation. †† Precipitation measured in the morning; amount then recorded is for the preceding 24 hours. T. Trace, or less than 0.01 inch.
*** Regular U. S. Weather Bureau station; precipitation is for 24-hour period, midnight to midnight. ** Precipitation in the next following measurement; separate dates of fall not recorded. * Precipitation is for 24-hour period midnight to midnight.

Daily Temperatures for July, 1928

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
Northeast Plain																																	
Brunswick	92	93	94	93	97	96	95	85	93	97	83	87	83	83	80	89	92	96	94	93	91	90	88	90	91	89	84	80	72	72	83	88.5	
Maximum	92	93	94	93	97	96	95	85	93	97	83	87	83	83	80	89	92	96	94	93	91	90	88	90	91	89	84	80	72	72	83	88.5	
Minimum	63	63	73	76	74	75	75	75	68	70	67	67	63	69	63	67	67	71	75	76	72	72	66	63	67	70	66	57	61	64	62	68.0	
Columbia	90	92	93	91	94	92	92	86	89	93	83	85	81	80	81	86	90	92	94	90	91	87	85	86	87	84	84	75	71	71	89	86.3	
Maximum	90	92	93	91	94	92	92	86	89	93	83	85	81	80	81	86	90	92	94	90	91	87	85	86	87	84	84	75	71	71	89	86.3	
Minimum	63	75	75	76	75	74	70	66	65	65	69	64	58	66	67	68	74	73	76	72	72	67	64	67	68	65	59	62	58	66	68.2		
Fayette	91	92	94	93	96	94	94	87	93	94	86	88	85	83	81	88	91	94	95	92	93	91	89	90	88	92	89	79	71	75	81	88.7	
Maximum	91	92	94	93	96	94	94	87	93	94	86	88	85	83	81	88	91	94	95	92	93	91	89	90	88	92	89	79	71	75	81	88.7	
Minimum	57	64	73	74	72	71	71	72	62	68	62	64	62	55	61	64	64	65	69	74	70	69	62	60	63	66	61	55	58	57	67	64.6	
Hannibal	87	92	93	92	90	94	93	87	90	93	85	80	80	81	87	87	90	92	95	92	91	89	86	88	87	87	85	74	76	78	77	87.0	
Maximum	87	92	93	92	90	94	93	87	90	93	85	80	80	81	87	87	90	92	95	92	91	89	86	88	87	87	85	74	76	78	77	87.0	
Minimum	63	74	77	72	73	77	76	72	68	69	69	68	63	59	61	66	66	73	74	76	72	72	66	67	69	71	64	60	60	59	66	68.5	
Jefferson City	90	91	92	92	94	93	93	83	87	80	83	81	79	82	83	87	89	92	88	89	85	88	85	85	85	85	85	73	79	74	82	85.7	
Maximum	90	91	92	92	94	93	93	83	87	80	83	81	79	82	83	87	89	92	88	89	85	88	85	85	85	85	85	73	79	74	82	85.7	
Minimum	63	73	74	73	75	73	73	65	69	65	69	65	61	66	69	67	71	73	74	75	71	69	63	67	68	68	60	60	58	58	66	68.0	
Kirksville	87	92	92	90	93	93	93	83	87	80	83	81	79	82	83	87	89	92	88	89	85	88	85	85	85	85	85	73	79	74	82	85.7	
Maximum	87	92	92	90	93	93	93	83	87	80	83	81	79	82	83	87	89	92	88	89	85	88	85	85	85	85	85	73	79	74	82	85.7	
Minimum	60	76	74	70	69	75	72	72	66	62	61	69	60	57	60	66	65	72	70	70	69	63	62	67	68	62	63	69	56	64	66.1		
Louisiana	90	90	96	92	94	96	94	90	90	88	84	82	84	86	88	90	92	94	90	92	92	90	92	92	90	90	88	80	80	80	89.4		
Maximum	90	90	96	92	94	96	94	90	90	88	84	82	84	86	88	90	92	94	90	92	92	90	92	92	90	90	88	80	80	80	89.4		
Minimum	54	66	68	68	66	64	60	60	60	52	50	48	52	54	52	54	60	66	64	68	65	56	60	56	58	54	50	48	54	58	59.1		
Macon	90	93	95	93	95	95	86	90	94	85	83	81	83	82	80	91	94	96	92	98	91	88	92	91	90	85	76	78	73	82	88.6		
Maximum	90	93	95	93	95	95	86	90	94	85	83	81	83	82	80	91	94	96	92	98	91	88	92	91	90	85	76	78	73	82	88.6		
Minimum	59	72	74	75	71	74	73	75	65	67	62	68	64	57	60	61	65	71	73	74	74	70	64	63	66	69	63	55	59	58	64	66.6	
Mexico	92	94	96	94	96	96	95	87	92	94	86	85	83	82	84	89	92	95	97	94	93	89	87	90	87	89	87	80	88	83	73	84	88.9
Maximum	92	94	96	94	96	96	95	87	92	94	86	85	83	82	84	89	92	95	97	94	93	89	87	90	87	89	87	80	88	83	73	84	88.9
Minimum	61	72	75	75	72	75	73	74	68	68	65	63	58	62	65	65	68	73	76	74	70	64	63	65	68	63	56	59	63	59	67.1		
St. Louis(1)	89	93	95	93	91	91	94	91	92	83	89	87	83	81	84	87	90	92	95	95	95	90	87	86	87	84	88	79	74	79	85	82.4	
Maximum	89	93	95	93	91	91	94	91	92	83	89	87	83	81	84	87	90	92	95	95	95	90	87	86	87	84	88	79	74	79	85	82.4	
Minimum	66	73	75	78	65	74	77	73	73	76	74	70	68	66	70	71	72	75	74	74	77	74	72	71	73	73	71	66	63	64	65	71.4	
Unionville	88	92	92	92	91	93	92	86	90	88	85	80	80	83	84	88	90	94	92	90	86	87	86	88	88	90	88	75	80	78	86	87.2	
Maximum	88	92	92	92	91	93	92	86	90	88	85	80	80	83	84	88	90	94	92	90	86	87	86	88	88	90	88	75	80	78	86	87.2	
Minimum	60	71	74	66	60	72	70	68	63	65	60	64	58	54	58	66	65	70	64	68	68	66	60	58	65	65	63	52	56	52	63	63.4	
Warrenton	90	94	96	92	95	94	95	88	92	88	89	82	81	87	88	92	96	96	96	94	89	87	86	89	87	86	85	83	73	74	84	88.9	
Maximum	90	94	96	92	95	94	95	88	92	88	89	82	81	87	88	92	96	96	96	94	89	87	86	89	87	86	85	83	73	74	84	88.9	
Minimum	64	73	74	74	72	75	74	73	69	69	66	67	63	60	64	67	66	71	72	73	74	71	66	65	69	70	67	59	57	61	63	68.0	
Southeast Lowlands																																	
Campbell	90	94	94	94	95	95	94	89	90	94	92	92	85	84	87	89	91	92	94	96	94	94	90	90	90	84	91	85	81	85	92	90.5	
Maximum	90	94	94	94	95	95	94	89	90	94	92	92	85	84	87	89	91	92	94	96	94	94	90	90	90	84	91	85	81	85	92	90.5	
Minimum	63	70	70	75	74	73	70	69	66	69	69	68	62	59	65	63	69	67	67	67	73	71	69	62	64	65	69	66	57	60	61	66.9	
Caruthersville	81	95	95	96	96	98	88	84	85	83	84	81	79	78	87	82	82	84	88	84	89	89	86	82	83	83	87	78	74	77	84	85.4	
Maximum	81	95	95	96	96	98	88	84	85	83	84	81	79	78	87	82	82	84	88	84	89	89	86	82	83	83	87	78	74	77	84	85.4	
Minimum	66	74	75	78	78	76	73	75	72	75	72	68	66	71	73	70	71	74	74	74	78	75	71	72	74	72	74	65	63	74	72.6		
Doniphan	93	94	96	96	97	96	95	90	92	94	86	83	86	86	85																		

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Nat. Hist.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., AUGUST, 1928. No. 8.

GENERAL SUMMARY.

The month of August, 1928, in Missouri, was not marked by any outstanding weather features. The temperature and sunshine elements approximated the normal, while the rainfall for the State as a whole averaged about 40 per cent more than the normal, the amounts and distribution agreeing quite closely with August, 1927, and 1926. There were frequent temperature changes, but the variability was usually of small range and did not persist for more than a few days. A warm spell did prevail from about the 10th to 15th, but nowhere did the day values reach 100°, 99° being the highest. Values of 100° or higher are quite common in August, and the current month made the third in 40 years that did not experience 100° or higher. As a rule the night temperatures ran slightly higher than usual, while the day values rather persisted in a tendency to lower than normal.

While there were a few thunderstorm squalls of short duration, there was no damage or loss reported. There was some hail, attending feature of thunderstorms, but the stones were either too small or fell for so short a time that there was no damage.

The month's weather was generally favorable for outdoor work in all parts of the State. At the opening of the month there were many local areas in need of rain but a generous supply was furnished by or before the 9th, and good showers followed at favorable intervals to the close of the month. All growing crops did well, and a large hay crop was stacked.

TEMPERATURE.

The monthly mean temperature for the State, 68 stations reporting, was 76.4°, or only about 0.4° above the normal, and about 5° warmer than August, 1927. The temperature distribution was uniform, the month being without any decided hot spells. Each five-day period was characterized by having small plus and negative departures. The maximum for the month was 99°, a little warmer than last August, and the third August in more than forty years that did not experience the value 100° in some part of the State. The average number of days with 90° or higher was 15. A few nights during the last week cooled down to the 40's but that is quite common for August.

PRECIPITATION.

The average precipitation for the State, 99 stations reporting, was 5.35 inches, or 1.67 inches greater than the 56 years' average, and the third consecutive August with rainfall above the normal. All sections received more than the normal, but no part of either the month or the State was at any time very wet. The rains of the 1st, 4th, and 9th were the most general and generous for about a month, followed by a showery period from the 17th to the 25th, the final rain of the month being on the 29-30th. The greatest monthly amount was 11.24 inches at Galena; and the greatest amount in any 24 consecutive hours was 5.52 inches, on the 1st at Boonville.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—10th, 13th, 19th, and 26th.

Hail, small, without material damage.—St. Louis, 9th; Warrenton, 21st, Neosho 22d, and Brunswick, 26th.

Halos, lunar.—None. Solar.—1st, 8th, 11th, 12th, 24th, 30th and 31st.

Thunderstorms.—Local, 1st, 4th, 5th, 6th, 8th, 14th, 15th,

18th, 20th, 21st, 26th, 28th, and 30th. General, 3d, 7th, 9th, 16th, 17th, 22d, 23d, and 29th.

OBSERVERS REMARKS.

Brunswick.—Heavy fog on the 19th. Large hail at 5 p. m. of the 26th; no damage.
Gorin.—Warm; drying fast at end of the month.
Macon.—Nice rains; corn maturing fine.
Unionville.—Fog on the 26th.
Warrenton.—Hail on the 21st.
Aurora.—Fog in early morning on the 10th, 19th and 26th.
Farmington.—A pleasant summer month. Latter half mild and humid which caused grapes to ripen poorly. Tomatoes were also damaged. Most farm crops are thriving.
Lockwood.—A very favorable month; corn is good; plowing for fall seeding finished; pastures good. Conditions are good and there is ample moisture for all crops. Wild hay is also good.
Neosho.—Hail on the 22d.
Salem.—Dense fog until 8 a. m. on the 13th and 19th.
Lamonte.—Fall pastures good; soy beans in fine shape for hay; some plowing for wheat. Early corn ripening.
Edgerton.—Rain is needed as the ground is dry and hard; fall plowing has begun but ground plows hard.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations	Mean barometric pressure (Seale's)	Mean relative humidity		Sunshine		Wind				
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total movement miles	Average hourly velocity	Miles per hour	Direction	Date
Columbia.....	29.99	89	74	306	72	3,775	5.1	22	sw.	20
Hannibal.....	29.99	84	..	..	..	4,873	6.5	26	w.	5
Kansas City.....	29.97	82	61	352	83	5,414	7.3	40	n.	7
St. Joseph.....	29.96	87	62	290	68	4,516	6.1	38	w.	3
St. Louis.....	30.00	82	62	251	59	6,552	8.8	38	sw.	4
Springfield.....	30.02	89	70	308	73	5,247	7.1	29	nw.	7
Caïro, Ill.....	30.01	88	73	..	..	4,058	5.5	34	nw.	21
Keokuk, Iowa.....	30.01	81	62	330	78	4,096	5.5	24	s.	20

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR AUGUST.

Year	Temperature				Precipitation				Number of days				
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With .01 inch or more	Clear	Partly cloudy	Cloudy	
1888.....	74.0	-1.6	110	48	7.25	-3.80	....	0	11	..	..	..	..
1889.....	73.5	-2.1	101	52	1.96	-1.49	....	0	14	..	..	..	..
1890.....	73.3	-2.3	104	49	4.84	+1.39	....	0	9	..	..	..	..
1891.....	73.2	-2.4	108	38	5.34	+1.89	....	0	8	..	..	..	..
1892.....	74.3	-1.3	100	40	2.42	-1.03	4.55	0	6	17	8	6	6
1893.....	72.8	-2.8	100	40	2.20	-1.25	5.60	0	4	18	10	3	3
1894.....	77.0	+1.4	111	39	1.58	-1.87	3.07	0	5	14	16	1	1
1895.....	75.3	-0.3	104	48	4.23	+0.78	3.50	0	8	15	11	5	5
1896.....	76.6	+1.0	108	41	3.25	-0.20	4.80	0	6	17	10	4	4
1897.....	74.1	-1.5	108	41	2.39	-1.06	5.00	0	6	19	9	3	3
1898.....	75.8	+0.2	103	44	3.03	-0.42	4.75	0	5	17	10	4	4
1899.....	78.8	+3.2	107	49	3.35	-0.10	4.28	0	7	18	10	3	3
1900.....	80.3	+4.7	105	52	3.51	+0.06	2.77	0	6	19	9	3	3
1901.....	78.4	+2.8	109	47	1.88	-1.57	4.33	0	5	19	9	3	3
1902.....	75.0	-0.6	103	47	6.16	+2.71	7.84	0	10	14	11	6	6
1903.....	74.4	-1.2	102	43	5.40	-1.95	6.40	0	10	16	11	4	4
1904.....	73.7	-1.9	100	43	5.46	+2.01	4.43	0	8	16	10	5	5
1905.....	76.1	+0.8	102	48	4.69	+1.24	3.94	0	8	19	7	5	5
1906.....	76.6	+1.0	101	40	4.72	+0.27	3.55	0	11	14	10	7	7
1907.....	77.3	+1.7	109	47	3.71	+0.26	3.60	0	9	17	8	6	6
1908.....	76.4	+0.8	102	46	3.87	+0.42	3.57	0	8	17	9	5	5
1909.....	79.5	+3.9	110	40	0.55	-2.90	4.00	0	2	24	6	1	1
1910.....	74.7	-0.9	103	40	2.77	-0.68	5.80	0	6	15	9	7	7
1911.....	75.4	-0.2	109	41	4.20	+0.55	5.17	0	7	15	8	8	8
1912.....	76.2	+0.6	104	41	4.19	-0.74	2.62	0	9	17	8	6	6
1913.....	82.8	+6.9	110	41	1.06	-2.51	3.51	0	3	22	7	2	2
1914.....	78.0	+1.8	106	49	4.25	+0.60	8.50	0	9	15	9	10	10
1915.....	69.8	-6.5	98	37	7.86	+4.15	8.20	0	12	12	9	7	7
1916.....	79.2	+2.9	107	41	4.05	+0.49	6.48	0	7	19	7	5	5
1917.....	73.3	-2.9	104	38	4.45	+0.94	5.20	0	9	16	8	7	7
1918.....	81.8	+5.8	111	45	3.34	-0.27	3.42	0	8	17	9	5	5
1919.....	75.7	-0.5	106	44	4.29	+0.49	7.00	0	8	17	9	5	5
1920.....	73.1	-3.0	102	43	4.78	+0.89	5.77	0	9	15	8	8	8
1921.....	76.8	+0.8	109	48	5.27	+1.63	5.20	0	9	14	0	7	7
1922.....	77.5	+1.2	107	46	2.40	-1.60	3.87	0	6	18	18	5	5
1923.....	77.3	+1.3	108	42	3.99	+0.31	5.25	0	8	16	9	6	6
1924.....	77.2	+1.2	106	48	4.14	+0.46	3.50	0	7	19	8	4	4
1925.....	76.5	+0.5	107	45	3.45	-0.23	4.26	0	6	19	8	4	4
1926.....	77.5	+1.5	106	50	5.63	+1.95	5.83	0	10	15	9	7	7
1927.....	71.1	-4.9	97	39	5.06	+1.38	7.76	0	9	14	10	7	7
1928.....	76.4	+0.4	99	45	5.35	+1.67	5.52	0	9	15	10	6	6

Climatological Data for August, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., of inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain																				
Brinswick	Chariton	652	48	77.0	+ 3.2	95	8†	53	30	31	5.86	+1.97	1.25	0	12	20	0	11	sw.	O. K. Benecke
Clifton Hill	Randolph	731	28	74.8	+ 1.4	95	16	54	31	27	6.05	+2.02	3.02	0	9	23	2	6	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	75.8	+ 0.2	92	16	59	31	23	3.22	+0.18	0.66	0	11	16	10	5	s.	U. S. Weather Bureau
Downing	Schuyler	876	6	73.6	.....	95	16	50	31	30	4.28	+0.76	2.87	0	5	21	7	3	s.	James Taylor
Fayette	Howard	661	47	75.2	- 1.9	96	16	54	25	32	5.59	+2.37	1.30	0	11	...	...	...	.....	J. D. Settle
Fulton	Callaway	818	39	76.0	- 0.6	91	17	57	31	29	4.29	+0.78	1.94	0	11	5	22	4	.....	Chamber of Commerce
Gorm	Scotland	700	40	.....	.....	.....	.....	...	...	...	3.23	+0.23	1.88	0	5	16	6	9	se.	J. W. Pulliam
Hannibal	Marion	534	35	76.6	+ 1.6	95	16	58	25	26	0.96	-2.42	0.47	0	9	16	11	4	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	77.0	+ 0.3	98	4	58	31	31	5.63	+2.57	1.85	0	11	21	3	7	s.	Miss Emma Swift
Kirkville	Adair	969	38	75.0	+ 1.0	94	2	51	25	40	4.70	+1.38	2.63	0	6	20	4	7	s.	Prof. J. S. Stokes
Louisiana	Pike	469	33	73.6	- 1.4	96	2†	45	22	42	1.40	-2.33	0.75	0	10	12	19	6	s.	Stark Bros. Nurseries
Macon	Macon	875	28	75.6	+ 0.7	94	2†	51	25	28	4.34	+1.06	1.20	0	11	21	4	6	sw.	W. C. Brown
Mexico	Andrain	800	38	76.4	+ 0.3	96	8†	56	31	31	3.90	+0.65	1.27	0	12	25	0	6	sw.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	...	...	...	...	...	3.34	.....	0.99	0	9	19	6	6	se.	J. S. Conway
St. Charles	St. Charles	456	39	77.2	+ 0.5	95	14	58	31	34	3.57	+0.11	1.92	0	10	16	6	9	s.	L. C. Saeger
St. Louis (1)	St. Louis City	568	53	77.6	+ 0.1	94	28	60	25	23	4.83	+1.84	1.44	0	11	13	11	7	sw.	U. S. Weather Bureau
St. Louis (2)	St. Louis	578	15	77.4	+ 0.2	94	28	61	25	20	3.25	-2.36	0.98	0	11	15	11	5	w.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	...	...	...	...	...	2.85	.....	0.00	0.92	0	11	...	...	.....	J. C. Jewett
Stellenville	Lewis	650	29	76.6	- 0.1	98	15	52	25	30	3.75	+0.28	1.55	0	5	15	12	4	s.	Frank Hall
Unionville	Putnam	1,062	34	74.2	- 0.8	94	8†	48	25	32	7.65	+3.69	4.45	0	8	19	7	5	nw.	Geo. W. Davis
Warrenton	Warren	816	45	77.0	+ 0.6	95	8†	57	31	28	5.54	+2.36	1.75	0	10	15	10	6	sw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	75.9	+ 0.9	94	16	56	25	25	2.67	-0.53	1.23	0	7	15	9	7	s.	U. S. Weather Bureau
Section means and extremes				75.9	+ 0.2	98	4†	45	22	42	4.13	+0.70	4.45	0	9	17	8	6	s.	
Southeast Lowlands																				
Campbell	Dunklin	314	2	78.8	.....	97	15†	61	7	35	5.84	.....	1.75	0	9	14	7	10	s.	Jeff. King
Caruthersville	Pemiscot	265	31	.....	.....	...	...	64	31	...	5.48	+1.91	2.00	0	9	13	8	10	s.	Sam Smith
Doniphan	Ripley	344	23	78.6	+ 1.2	95	28	62	1	32	5.89	+1.58	1.52	0	9	1	28	2	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	76.0	+ 0.2	95	9	56	6†	34	5.04	+1.43	0.95	0	13	5	12	13	s.	John G. Fritz
Marble Hill	Bollinger	470	32	78.6	+ 1.6	96	28	60	26	30	4.10	+0.60	1.50	0	8	12	7	7	w.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	...	...	...	...	...	5.76	+1.95	1.64	0	9	18	9	4	sw.	John A. Spence
Poplar Bluff	Butler	339	23	78.9	+ 0.9	96	16	64	31	28	6.58	+2.31	1.63	0	11	18	8	5	s.	J. H. Wolpers
Sikeston	Scott	318	22	78.8	+ 1.2	96	16†	63	22	29	4.77	+0.96	1.91	0	8	17	6	8	w.	Glen R. Fisher
Cairo, Ill.	Alexander, Ill.	358	52	78.7	+ 0.9	93	14	63	31	21	3.95	+0.93	0.92	0	10	8	11	12	s.	U. S. Weather Bureau
Section means and extremes				78.3	+ 0.9	97	15†	56	6†	35	5.33	+1.53	2.00	0	10	11	12	8	s.	
Ozark Plateau																				
Arcadia	Iron	926	46	73.7	- 0.8	91	28	56	13	27	5.72	+2.00	1.36	0	9	26	0	5	se.	Arenda College
Aurora	Lawrence	1,370	37	76.6	- 0.2	92	28	57	31	25	8.52	+4.25	3.86	0	8	23	2	6	sw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	76.4	+ 0.5	93	16†	54	22	32	7.41	+3.02	1.60	0	12	20	8	3	s.	V. H. Kirkendall
Bolivar	Polk	1,071	33	.....	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	Southwest Baptist College
Dean II	McDonald	1,000	28	77.8	+ 0.3	96	28	60	12	29	6.22	+1.95	3.45	...	...	27	0	4	se.	H. E. Dean
Elton	Miller	934	31	76.8	+ 0.4	96	16†	56	31	33	5.16	+1.18	1.47	0	9	2	21	5	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	75.4	+ 0.6	96	28	54	13	33	5.78	+2.40	1.59	0	9	14	12	5	ne.	Robert Forsyth
Goodland	Iron	1,000	33	75.0	+ 0.5	95	8	54	31	34	5.33	+1.30	1.22	0	10	12	11	8	s.	F. M. Adams
Greenville	Wayne	381	5	.....	.....	...	...	...	...	...	3.93	.....	1.00	0	10	...	...	...	.....	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	...	...	...	...	...	7.90	.....	3.45	0	6	25	2	4	w.	A. W. Madison
Koshkongoig	Oregon	958	26	78.4	+ 0.7	95	16	63	31	25	3.09	-1.36	0.92	0	7	10	13	7	sw.	R. M. Hitt
Lebanon	Laclede	1,265	39	75.4	- 0.9	95	14	53	31	34	5.58	+2.05	1.21	0	15	16	10	5	se.	Mrs. Lou Muleare
Lockwood	Dade	1,078	21	76.4	- 0.8	94	8†	56	31	36	5.98	+1.81	2.03	0	6	16	11	4	n.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	76.4	+ 1.3	95	1†	57	31	30	5.91	+1.51	1.41	0	12	14	15	2	sw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	76.9	0.0	93	8†	56	31	29	9.62	+5.53	4.86	0	9	23	7	1	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	76.9	+ 1.1	93	1†	59	24†	27	4.65	+0.57	1.04	0	12	15	11	5	w.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	74.6	- 1.5	93	16	56	31	28	5.10	+0.69	1.70	0	11	18	9	4	s.	A. C. Leach
Seligman	Barry	1,542	25	77.7	+ 2.1	93	8†	59	24	26	8.66	+4.67	4.31	0	8	18	9	4	sw.	Floyd E. Fawver
Seymour (near)	Webster	1,642	21	75.3	+ 0.3	91	14†	56	31	30	5.18	+1.34	1.70	0	8	20	9	2	sw.	Im H. Hailey
Springfield	Greene	1,324	39	75.9	+ 0.2	91	28	58	24	24	7.81	+3.50	2.48	0	13	23	5	3	s.	U. S. Weather Bureau
Section means and extremes				76.2	+ 0.2	96	16†	53	31	36	6.19	+2.14	4.86	0	10	18	9	4	sw.	
Southwest Plain																				
Appleton City	St. Clair	853	33	78.0	+ 0.2	95	15†	56	24	28	7.35	+3.61	2.46	0	9	14	15	2	ne.	W. G. Bigelow
Centerview	Johnson	872	40	77.8	+ 0.8	97	28	54	24	29	7.26	+3.67	1.64	0	10	12	8	3	se.	E. A. Markey
Clifton	Henry	765	34	79.4	+ 2.6	99	15	54	24	30	5.54	+2.18	1.34	0	9	18	12	1	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	75.6	- 0.2	95	10†	52	24	28	6.24	+2.09	1.69	0	10	6	1	24	sw.	John H. Patterson
Lamar	Barton	980	40	77.7	+ 0.2	95	28	56	31	27	4.98	+0.80	2.50	0	9	13	12	6	sw.	Jesse A. Mann
Lamotte	Pettis	867	26	76.8	+ 0.1	98	15	54	24	35	1.58	-2.14	0.53	0	6	19	10	2	s.	J. E. Wheeler
Marshall	Saline	779	38	.....	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	Dr. W. H. Black
Nevada	Vernon	862	34	77.7	+ 0.8	94	16	55	31	32	4.52	+1.01	2.04	0	6	18	8	5	s.	George A. Kaupp
Warsaw	Benton	687	27	77.4	0.0	95	16	53	31	30	6.71	+2.42	3.50	0	7	8	18	5	e.	Everett Martin
Section means and extremes				77.6	+ 0.6	99	15	52	24	35	5.52	+1.70	3.50	0	8	14	11	6	sw.	
Northwest Plateau																				
Bethany	Harrison	916	35	75.9	+ 1.0	96	2	49	24	27	6.50	+2.62	3.30	0	6	17	9	5	s.	M. H. Moulton
Chillicothe	Livingston	779	18	75.4	- 0.7	96	15	48	25	41	4.87	+0.21	2.20	0	14	20	10	1	e.	Wm. J. Olenhouse
Conception	Nodaway	980	38	75.7	+ 1.1	95	8†	48	24	33	4.81	+1.333								

Daily Precipitation for August, 1928

Stations.	Drainage-basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Northeast Plain																																	
Boonville	Missouri	5.52			.80			.60	.13	.01	.65							.08	.07			.62		.37	.46						.32		9.63
Brunswick	Grand	1.25			.68	.15		1.10	.05	.20								.15				.40		.38	.17						.18		5.86
Clifton Hill	Chariton				.99			.31		.14								.11				.62	.25	.48		3.02				.13		6.05	
Columbia***	Missouri			.38	.28		T.	.57		.57								.09			.40	.01	.24		.30					.34	.04	3.22	
Downing	Mississippi				2.87													.10				.70	T.	.57		T.	.04					4.28	
Fayette	Missouri	.38			1.14			.42		.21								.22				.90	.29	.13		.35	.25			1.30		5.59	
Finlon	do	1.94			.25	.14		.12		.10	.05							.01				1.06		.53		.04				.05		4.29	
Gorin	Mississippi				1.88													.24				.30		.79		.02						3.23	
Hannibal***	do			.11	.07		T.	T.		.02							T.	.14	.33			T.		.12		.03			.05	.09		0.96	
Hermann	Missouri	.52			.02	.06		1.25	.08												.60	.80		.74		.04	.75			.02	.01	4.89	
Jefferson City	do	.95			.30	.05		1.85	.05									.03	.25			.72		.03	.94					.46		5.63	
Kirkville	Mississippi				2.63													.35				.65	.38					.46		.23		4.70	
Louisiana	do	.02				.10		.12										.75	.05			.02		.12	.05		.05			.12		1.40	
Macou	Chariton	.12			1.10	.10		.18	T.	1.20								.50	.18			.12		.50	.29					.05		4.34	
Mexico	Mississippi				.58	.12		.95	.08	.17	.10							.02	.08			.19		.17						1.27		3.90	
Milan	Grand			.80	2.40			.08		.90	.05							.12				.28								1.33		5.96	
Monroe City	Mississippi	.60		T.	.99			.02	.09									.54				T.		.14	.28				T.	.57		3.34	
Paelfic	Meramec	.46	.05		.50	.92		.02	.10		.88							.38	.28			.38		1.38	T.							5.53	
St. Charles	Missouri	.12			T.	.27	.40			.17								.25	.01	.08		.23		.12	.92					T.		3.57	
St. Louis (1)***	Mississippi	.14		.03	.93			.38		1.44								.65	.05			.29		.65	.05	T.	T.			.22	T.	4.83	
St. Louis (2)*	do	.34		.18	.46			.38		T.	.03							.62	.04			.20		.98	.03	.01				T.	.01	3.25	
Shelbina	do	.08			.89			.18	.03	.04								.92	T.			.02		.54	.07					T.	.05	2.85	
Steffenville	do				1.55													.75				.65	.45	.35					T.		T.	3.75	
Union	Meramec	1.30			.33	.75		.03	.04		.09							.67				.38	.02		1.40			.28			.05	6.54	
Unionville	Chariton			2.25	2.20					.85								T.	.30			.60		.75		.45	.25			T.		7.65	
Warrenton	Mississippi	1.12			T.	.02	.12	1.75		T.								T.		.61			.20		.11	.54		.96			.11		5.54
Keokuk, Ia.***	do			.70	.53			T.										T.	.10			.31		.34	.60					.09		2.67	
Southeast Lowlands																																	
Campbell	St. Francis	.80	.32			.43													.25	.23		.83		.83	.40						1.75	5.84	
Cape Girardeau	Mississippi	.38			.36					.92		T.						.50		.80	.14	.62		1.08	.10						.45	5.35	
Caruthersville	do	.05	T.		.17	.02												2.00	1.00	.02	1.10		T.	1.20							.82	5.48	
Dexter	St. Francis	.84			.18														1.26	.23		1.14		.27	.14						.62	4.68	
Doniphan	Black	1.00			1.52			.03							.79			.58				.05	.05	1.15						.72		5.89	
Jackson	Mississippi	.56			.95			.02	.03						.42			.50	.18	.03		.75		.67	.46	.04					.43	5.04	
Marble Hill	Mississippi				.65			.20										.15	.50	.55			.40	1.50						.15		4.10	
Morehouse	do	1.61	T.		T.			.01								.44		.50	.45	.09		1.64		.53						.12	.87	5.76	
New Madrid	do	1.86	.01			.25				.04								.42	.04			.30	.15	.63	.60						1.93	5.93	
Poplar Bluff	Black	.86	.54			1.63	.20											.76	.20			.64		.49	.24						.92	6.58	
Sikeston	Mississippi																																
Calro, Ill.***	do	.39			.63	T.	.09								T.			.46	.48			.56		.02	.68						.59	.05	3.95
Ozark Plateau																																	
Arcadia	St. Francis	.67			.45	.24				.82						T.	.33	.03	T.	.59		1.36		1.23								5.72	
Aurora	Neosho			3.86	T.		.02			.67								.55				2.15	.51	.18	.58							8.52	
Birchtree (near)	Black	.42			.65	.50	.07			1.30					.23			1.60	.28				.50	.35	1.09	.42						7.41	
Bolivar	Osage																																
Caplinger Mills	Osage	2.88			2.01	.25	.57			.06								T.		T.	.15		1.49	1.02	T.	T.					.33		8.70
Dean	Neosho			3.45	.45	.02	.06			.28								1.68						.35	.60							6.22	
Eldon	Missouri	1.47			.41	.03				.28												1.00		.34	.89					.46		5.16	
Farmington	St. Francis	1.14			1.23			.27										T.				.32		.51	.53	.08	.11					5.78	
Fredericktown	do	.62			1.18		.03			.10									.22			1.40		2.30	.15							6.00	
Galena	White			1.82	1.02													.75				1.15	.75		1.88	1.20	.42	.75	1.50			11.24	
Goodland	Black	.18		.20	1.22													.15				.56		.25	1.10							5.33	
Greenville	St. Francis	.75				.10	.16											.76	.22				.10	.70	.02				1.00	.12		3.93	
Hailey	White			3.45		.45				.20								1.80						1.00	1.00							7.90	
Koshkonong	Black				.66					.14								.36					.33		.92						.15	.53	3.09
Lebanon	Osage	.35	.27		.32	.61		.18		.18								.78	.32				.12	.21	.48	1.21	.04	.10				5.58	
Lockwood	do	.97		2.03	.53													T.				1.12	1.25	T.						.08		5.98	
Mountain Grove	White	.08			1.24			1.05	.29								.33	.03			.21		.04	.49	1.41	.26	.48					5.91	
Neosho	Neosho			4.86		T.	.24			.05	.05							T.	.94				1.95	.85	.25	.27					.21		9.62
Owensville	Gasconade	1.67			.60			.65										.70				.80											

Daily Temperatures for August, 1928

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean		
Northeast Plain																																		
Brunswick §§	91	92	91	81	89	92	88	95	92	93	89	87	90	94	95	93	80	89	90	92	86	83	81	77	78	78	88	94	92	90	84	81	88.3	
	Maximum	91	92	91	81	89	92	88	95	92	93	89	87	90	94	95	93	80	89	90	92	86	83	81	77	78	78	88	94	92	90	84	81	88.3
	Minimum	67	72	74	68	66	67	68	68	69	69	65	61	63	64	69	72	71	68	64	65	65	62	65	55	55	60	67	72	73	58	65.6		
Columbia	87	91	91	80	86	89	83	90	85	89	82	82	85	90	92	92	79	82	86	90	81	74	81	72	75	83	92	91	91	77	75	84.6		
	Maximum	87	91	91	80	86	89	83	90	85	89	82	82	85	90	92	92	79	82	86	90	81	74	81	72	75	83	92	91	91	77	75	84.6	
	Minimum	65	72	68	68	67	70	68	70	67	67	66	63	63	69	70	72	71	69	65	69	66	63	65	60	61	67	72	73	70	61	59	67.0	
Fayette	89	92	91	80	90	92	89	93	89	93	86	87	90	94	95	96	82	87	88	93	85	76	80	77	78	85	93	95	90	79	76	87.5		
	Maximum	89	92	91	80	90	92	89	93	89	93	86	87	90	94	95	96	82	87	88	93	85	76	80	77	78	85	93	95	90	79	76	87.5	
	Minimum	63	66	70	65	63	65	64	64	63	62	59	58	62	63	67	67	67	60	62	63	59	62	57	54	59	69	70	64	63	55	62.8		
Hannibal	90	92	92	81	81	91	90	92	92	92	89	82	84	85	90	92	95	81	85	88	91	81	81	74	77	80	93	89	93	79	76	86.1		
	Maximum	90	92	92	81	81	91	90	92	92	89	82	84	85	90	92	95	81	85	88	91	81	81	74	77	80	93	89	93	79	76	86.1		
	Minimum	70	74	68	68	69	69	71	68	71	69	67	63	60	64	73	71	71	68	62	68	64	61	65	60	58	65	73	76	72	61	59	67.0	
Jefferson City §§	85	91	94	98	96	97	93	96	92	93	86	86	74	91	93	96	82	80	86	91	82	75	79	72	75	89	93	95	93	78	77	87.4		
	Maximum	85	91	94	98	96	97	93	96	92	93	86	86	74	91	93	96	82	80	86	91	82	75	79	72	75	89	93	95	93	78	77	87.4	
	Minimum	65	67	71	68	68	69	65	66	70	62	67	65	64	68	69	70	72	71	65	67	68	63	64	60	60	63	71	71	73	68	66	66.7	
Kirksville	93	94	90	83	84	91	89	93	93	89	85	85	87	92	93	92	82	87	84	89	85	80	81	73	78	78	91	88	86	80	74	86.1		
	Maximum	93	94	90	83	84	91	89	93	93	89	85	85	87	92	93	92	82	87	84	89	85	80	81	73	78	78	91	88	86	80	74	86.1	
	Minimum	67	74	75	66	64	66	66	70	66	72	61	56	61	54	53	71	68	63	69	69	65	59	66	53	51	62	69	73	69	68	52	63	
Louisiana	90	96	96	94	94	92	90	92	91	94	92	92	90	92	90	90	90	90	90	90	90	90	88	85	82	76	89	92	94	94	90	76	91.2	
	Maximum	90	96	96	94	94	92	90	92	91	94	92	92	90	92	90	90	90	90	90	90	90	88	85	82	76	89	92	94	94	90	76	91.2	
	Minimum	60	62	68	60	60	56	60	55	60	55	50	50	50	50	50	50	50	50	50	50	50	45	45	45	45	45	45	45	45	45	45	45	
Macon §§	91	94	91	82	88	92	88	94	90	91	85	86	87	91	94	94	79	87	89	89	81	78	80	75	79	85	93	90	89	82	77	80.9		
	Maximum	91	94	91	82	88	92	88	94	90	91	85	86	87	91	94	94	79	87	89	89	81	78	80	75	79	85	93	90	89	82	77	80.9	
	Minimum	66	69	74	67	64	66	67	67	66	66	62	59	59	63	69	70	69	63	62	67	63	58	65	51	59	70	73	70	61	54	61.8		
Mexico §§	91	95	95	82	90	94	87	96	89	92	84	85	87	94	93	96	83	87	91	83	85	75	73	76	81	82	96	94	93	79	71	87.4		
	Maximum	91	95	95	82	90	94	87	96	89	92	84	85	87	94	93	96	83	87	91	83	85	75	73	76	81	82	96	94	93	79	71	87.4	
	Minimum	67	69	73	67	65	69	70	67	67	67	63	60	58	64	69	69	70	67	63	67	66	60	63	58	57	62	65	72	73	65	56	65.3	
St. Louis (1)	87	92	92	86	89	91	90	92	89	92	79	83	85	88	90	92	87	84	87	89	83	80	71	74	83	61	94	90	90	89	78	86.1		
	Maximum	87	92	92	86	89	91	90	92	89	92	79	83	85	88	90	92	87	84	87	89	83	80	71	74	83	61	94	90	90	89	78	86.1	
	Minimum	68	72	74	70	71	72	69	75	66	73	66	65	65	71	73	72	68	72	68	72	69	65	68	65	60	67	70	75	72	69	69	76	
Unionville	92	93	90	88	84	90	90	94	92	88	84	85	85	88	94	92	80	85	88	87	81	80	72	78	78	78	78	78	78	78	78	78	78	
	Maximum	92	93	90	88	84	90	90	94	92	88	84	85	85	88	94	92	80	85	88	87	81	80	72	78	78	78	78	78	78	78	78	78	
	Minimum	66	73	65	65	60	65	65	70	65	70	58	53	58	65	66	70	67	57	60	68	62	56	65	55	48	62	67	70	64	54	50	62.5	
Warrenton	90	94	92	80	87	92	86	95	88	90	87	84	88	93	95	81	83	88	90	85	80	85	80	81	79	74	82	93	95	93	86	76	87.2	
	Maximum	90	94	92	80	87	92	86	95	88	90	87	84	88	93	95	81	83	88	90	85	80	85	80	81	79	74	82	93	95	93	86	76	87.2
	Minimum	66	72	76	67	70	68	68	68	70	69	64	61	60	67	70	70	73	70	64	67	66	59	67	59	60	62	70	73	72	64	57	66.7	
Southeast Lowlands																																		
Campbell	95	93	93	91	89	94	96	93	95	93	88	90	91	96	97	95	97	84	90	91	85	81	91	81	83	92	95	96	92	85	77	90.6		
	Maximum	95	93	93	91	89	94	96	93	95	93	88	90	91	96	97	95	97	84	90	91	85	81	91	81	83	92	95	96	92	85	77	90.6	
	Minimum	66	68	70	71	69	69	61	67	70	67	68	67	67	69	67	65	67	69	69	64	65	63	65	69	66	66	66	66	67	70	63	67.0	
Cantharville	70	73	76	76	75	74	74	76	75	72	73	71	71	75	74	73	73	70	71	72	66	67	72	71	70	71	73	73	71	74	72	64	72.3	
	Maximum	70	73	76	76	75	74	74	76	75	72	73	71	71	75	74	73	73	70	71	72	66	67	72	71	70	71	73	73	71	74	72	64	72.3
	Minimum	91	94	93	90	88	93	94	91	93	87	88	88	91	91	93	83	83	88	91	87	88	91	74	87</									

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., SEPTEMBER, 1928. No. 9.

GENERAL SUMMARY.

As viewed from the side of personal comfort, September in Missouri was a very pleasant month. Save a summer-like spell the second week, the month was mainly cool, relatively dry as a whole, with normal sunshine. Considering the State as a whole it was the driest September since 1908; and for that part of the State south of the Missouri River the driest in thirty years or more. In fact, with inappreciable rain at several stations in the Ozark region it was the driest 30-day period of record. In marked contrast to the rainfall over the southern half of the State was the generous to excessive rainfall over the northern half. Over the northwest section, especially, monthly totals ranged from 6 to 9 inches, most of it falling in one spell from the 10th to the 14th; twelve stations had in excess of 3 inches within a 24-hour period. Some small rivers went out of banks but the damage was of small concern.

There was some outstanding cool weather after the 20th. Frost formed in low places on the 24th, and again on the 26th, being rather earlier than usual. The damage was confined to nipping tender vegetation in low places.

The month's weather was generally favorable for farm operations. Most crops matured satisfactorily; and fall grain sowing made good progress the last of the month, except in the southern third where the ground was too hard and dry for plowing.

TEMPERATURE.

The monthly mean temperature for the State from the records of 62 stations was 65° 0', or 4° below the normal. The daily negative departures were about equally pronounced in both northern and southern sections. Except a real summer spell of weather from the 8th to the 16th, when afternoon temperatures ranged from 90° to 95° generally, the month was mainly cool, with an outstanding cool spell from the 23d to the 26th. Frost and thin ice formed the night of the 24th at a few widely separated points, and again on the 26th, and more especially this time along the Ozark ridge from Webster County eastward to the Mississippi River. There was slight injury, confined to tender vegetation in low and exposed places.

PRECIPITATION.

The average precipitation for the State, 97 stations reporting, was 2.61 inches. This amount is about 1.12 inches less than the 56 years' average for September. The geographical distribution was noticeably uneven, showing generous to excessive amounts in the northern half of the State and equally marked deficiency in the southern half and especially in the southern third. At many of the southern stations it was not only the driest September but also the driest 30-day period in thirty years or more. Most of the rain of the northern half fell in two distinct spells, the first being from the 10th to the 14th, and the latter 27-29th. The remainder of the month being open and fine. The heaviest monthly total was 9.04 inches, at Downing, Schuyler County. The greatest amount to fall in any 24 consecutive hours was 5.60 inches, at Unionville, Putnam County on the 12-13th.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—20th, 28th, 29th, and 30th.
Frost, light.—24th, 25th, and 26th, generally.
Frost, heavy.—25th, and 26th in a few low places.
Frost, killing.—To tender vegetation only in low places, on the 24th, and 26th.
Hail, small.—St. Joseph on the 11th.
Halos, lunar.—22d. Solar.—4th, 16th, 22d, and 23d.

Thunderstorms.—2d, 10th, 11th, 12th, 13th, and 14th.

OBSERVERS REMARKS.

Maryville.—Severe wind night of the 11th. Damage about \$500 to telephone poles and shade trees.
Downing.—Barn struck by lightning and burned on the 12th. Loss \$500.
Kirksville.—Frosts on the 2d and 26th. Tender vegetation injured, and corn blades dried up.
Macon.—Crops in fine shape. Best in years.
Jackson.—Driest and coolest September in 36 years; 29° on the 24th was the record for so early.
Sikeston.—Light frost on the 24th; killed tender vegetation in low places.
Farmington.—Fine month for outdoor work. Driest September in 12 years. Killing frost on 24th, unusually early.
Lebanon.—Ground hard and dry, no plowing for wheat.
Lockwood.—One of the driest Septembers on record. Ground too dry for plowing. Good corn crop.
Salem.—The soil is getting dry and hard. Water is scarce in some places. Frost on the 24th and 26th; little damage.
Warsaw.—Very dry; injurious to pastures and seeding.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations	Mean barometric pressure (Sea-level)	Mean relative humidity		Sunshine		Wind				
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total movement miles	Average hourly velocity	Max. velocity		
								Miles per hour	Direction	Date
Columbia	30.06	85	63	284	76	4,001	5.6	29	nw.	12
Hannibal	30.06	84	49	306	82	4,638	5.4	35	nw.	12
Kansas City	30.04	73	49	306	82	5,680	7.9	25	n.	12
St. Joseph	30.03	73	50	269	72	4,631	6.4	27	nw.	12
St. Louis	30.01	73	53	270	72	7,037	9.3	36	sw.	14
Springfield	30.01	74	52	312	84	5,738	8.0	22	s.	12
Unionville	30.07	79	55	...	...	4,614	6.4	25	n.	23
Keokuk	30.06	79	57	268	72	3,939	5.5	27	nw.	2

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR SEPTEMBER.

Year	Temperature				Precipitation			Number of days				
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With .01 inch or more	Clear	Partly cloudy	Cloudy
1888	65.2	-3.7	97	28	1.11	-2.56	...	0	4	...	...	...
1889	64.7	-4.2	94	31	4.66	+0.99	...	0	11	...	...	...
1890	63.7	-5.2	98	34	3.98	+0.31	...	0	9	...	...	...
1891	70.6	+1.7	104	30	0.63	-3.04	...	0	6	...	...	...
1892	67.8	-1.1	97	32	2.39	-1.26	3.00	0	4	19	6	5
1893	69.9	+1.0	107	26	3.92	+0.25	5.20	0	6	17	7	6
1894	68.5	-0.4	101	34	4.93	+1.26	3.07	0	5	13	11	6
1895	71.8	+2.9	104	25	2.45	-1.22	6.21	0	4	19	8	3
1896	65.0	-3.9	101	28	4.17	+0.50	4.40	0	10	11	10	9
1897	74.3	+5.4	105	27	0.74	-2.93	2.13	0	2	23	5	2
1898	70.9	+2.0	103	30	6.74	+3.07	6.10	0	9	15	9	6
1899	67.4	-1.5	108	16	2.04	-1.63	3.01	0	4	20	6	4
1900	71.1	+2.2	100	29	4.81	+1.14	3.79	0	10	13	10	7
1901	68.9	0.0	103	27	2.31	-1.36	2.80	0	6	18	8	4
1902	63.2	-5.7	95	30	4.78	+1.11	6.55	0	10	15	6	9
1903	66.4	-2.5	98	32	4.41	+0.74	6.77	0	8	17	6	7
1904	69.6	+0.7	96	34	3.85	+0.18	2.46	0	3	16	8	6
1905	69.6	+0.7	98	41	7.67	+4.00	7.90	0	10	15	6	9
1906	71.9	+3.0	98	36	4.15	+0.48	4.28	0	11	15	8	7
1907	68.9	0.0	101	31	1.93	-1.74	2.25	0	6	18	7	5
1908	71.6	+2.7	99	28	1.80	-1.87	2.68	0	4	18	8	4
1909	68.7	-0.2	105	28	4.62	+0.95	4.48	0	8	18	6	6
1910	69.5	+0.6	97	34	5.53	+1.91	4.63	0	10	14	6	10
1911	73.7	+4.6	105	39	7.13	+3.46	7.75	0	11	13	7	10
1912	68.6	-0.3	105	27	3.06	-0.61	3.61	0	9	17	5	8
1913	69.4	+0.5	109	27	4.63	+0.79	4.08	0	9	13	7	10
1914	69.6	+0.5	99	35	6.27	+2.52	9.22	0	9	15	8	7
1915	70.6	+1.5	98	34	5.25	+1.51	5.91	0	7	16	7	7
1916	67.8	-1.5	101	27	2.94	+0.86	2.80	0	6	19	7	4
1917	67.9	-1.2	101	33	2.78	-1.09	4.13	0	5	19	6	5
1918	62.3	-6.7	96	29	4.73	+0.77	6.61	0	7	17	6	7
1919	71.4	+2.7	104	38	3.29	-0.54	4.93	0	5	20	6	4
1920	70.0	+1.4	100	31	4.81	+0.92	4.10	0	9	17	7	6
1921	73.4	+4.7	104	34	7.03	+3.15	5.45	0	13	13	9	8
1922	71.7	+2.6	107	34	3.31	-0.57	5.36	0	5	21	5	4
1923	68.7	-0.3	98	33	4.59	+0.86	5.26	0	11	12	9	9
1924	61.0	-5.0	96	29	3.77	+0.04	3.72	0	8	14	8	8
1925	74.6	+5.6	110	45	6.46	+2.73	8.92	0	10	14	6	10
1926	69.3	+0.3	97	27	8.79	+5.06	5.83	0	13	12	7	11
1927	71.6	+2.6	102	29	3.71	-0.02	6.37	0	8	17	7	6
1928	65.0	-4.0	95	28	2.61	-1.12	5.60	0	5	20	7	3

Climatological Data for September, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., of inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain																				
Brunswick	Chariton	652	48	64.4	- 2.3	92	9	36	25	37	7.43	+3.04	3.62	0	7	18	0	12	sw.	O. K. Benecke
Clinton Hill	Randolph	731	28	62.3	- 6.6	89	9	34	25†	34	5.46	+0.60	2.35	0	8	20	3	7	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	63.8	- 4.4	92	9	37	26	32	3.33	+0.48	2.50	0	6	20	6	4	se.	U. S. Weather Bureau
Downing	Schuyler	876	6	62.2 ^a	.....	93	9	32	26	34	9.04	+4.33	4.25	0	9	19 ^a	5 ^a	5 ^a	sw.	James Taylor
Payette	Howard	661	47	62.7	- 5.6	92	13	31	26	40	3.63	- 1.20	3.38	0	8	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	64.4	- 4.5	92	10†	32	26	35	1.41	- 2.98	1.24	0	6	13	16	1	.....	Chamber of Commerce
Gorin	Seothland	700	40	.....	.....	.....	.....	.....	.....	.....	6.35	+2.06	2.96	0	10	20	3	7	se.	J. W. Pulliam
Hannibal	Marion	534	35	63.0	- 4.7	93	9	32	26	33	4.42	+0.86	2.53	0	9	18	5	7	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	64.8 ^a	- 4.3	95	11	38	26	36	1.56	- 1.72	1.20	0	5	24	1	5	n.	Miss Emma Swift
Kirksville	Adair	969	38	62.8	- 3.2	91	9	35	25	36	4.76	+0.45	1.65	0	7	24	2	4	s.	Prof. J. S. Stokes
Louisiana	Pike	469	33	64.0	- 3.9	95	9	28	26	46	3.23	- 0.72	1.50	0	8	18	11	1	s.	Stark Bros. Nurseries
Macon	Macon	875	28	61.8	- 6.5	93	9	35	25	36	3.94	- 0.27	1.65	0	7	16	11	3	se.	W. C. Brown
Mexico	Andrew	800	38	63.8	- 4.8	95	9	33	26	37	5.62	+0.94	3.50	0	8	27	0	3	se.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	4.26	.....	1.28	0	8	17	6	7	se.	J. S. Conway
St. Charles	St. Charles	456	39	66.2	- 1.7	95	13	47	24†	37	1.63	- 1.65	0.67	0	5	20	5	5	s.	L. C. Saeger
St. Louis (1)	St. Louis City	568	53	67.4	- 3.1	93	13	43	24	25	1.70	- 1.76	1.17	0	8	16	12	2	sw.	U. S. Weather Bureau
St. Louis (2)	.....	578	15	66.8	- 3.4	92	9†	43	24†	25	1.39	- 3.25	0.57	0	9	20	9	1	se.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	5.20	+1.22	2.40	0	9	.....	.....	.....	.....	J. C. Jewett
Steffensville	Lewis	650	29	63.8	- 5.3	94	9	29	26	42	3.40	- 0.79	0.95	0	7	16	8	6	n.	Frank Hall
Unionville	Putnam	1,062	34	62.1	- 5.1	90	9	32	26	34	8.60	+3.99	5.60	0	7	20	5	5	nw.	Geo. W. Davis
Warrenton	Warren	816	45	65.8	- 3.0	93	9	38	24†	34	1.75	- 2.29	0.65	0	7	18	8	4	sw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	63.1	- 4.4	93	9	35	26	30	4.18	+0.34	2.69	0	9	18	5	7	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	64.0	- 4.3	95	9†	28	26	46	4.20	+0.08	5.60	0	8	19	6	5	s.	.....
Southeast Lowlands																				
Campbell	Dunklin	314	2	66.5	.....	93	13	34	24	42	1.47	.....	1.47	0	1	27	3	0	n.	Jeff. King
Caruthersville	Pemiscot	265	31	.....	.....	.....	.....	.....	.....	.....	0.22	- 2.88	0.13	0	2	19	9	2	n.	Sam Smith
Doniphan	Ripley	344	23	65.8	- 5.0	92	13	35	24	37	1.01	- 2.63	0.96	0	2	26	4	0	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	64.6	- 5.3	92	13	29	24	42	0.07	- 3.48	0.04	0	2	13	10	7	n.	John G. Putz
Marble Hill	Bollinger	470	32	66.2	- 4.2	94	13	30	24†	44	0.00	- 3.63	0.00	0	0	26	3	1	n.	It. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	0.16	- 2.70	0.16	0	1	27	3	0	n.	John A. Spence
Poplar Bluff	Butler	339	23	67.2	- 4.1	92	9†	36	24	38	0.67	- 2.91	0.67	0	1	25	5	0	w.	J. H. Wolpers
Sikeston	Scott	318	22	.....	.....	.....	.....	.....	.....	.....	0.14	- 2.72	0.12	0	2	22	6	2	n.	Glen E. Fisher
Cairo, Ill.	Alexander, Ill.	358	52	68.2	- 3.3	90	13	43	26	26	0.14	- 2.75	0.14	0	1	17	10	3	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	66.4	- 4.4	94	13	29	24	44	0.43	- 2.96	1.47	0	1	22	6	2	n.	.....
Ozark Plateau																				
Arcadia	Iron	926	46	62.2	- 5.4	90	13†	29	26	44	0.25	- 3.39	0.25	0	1	28	0	2	se.	Arcadia College
Aurora	Lawrence	1,370	37	66.4	- 4.3	89	13†	43	24	31	0.84	- 2.89	0.48	0	3	26	3	1	se.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	65.3	- 4.2	90	13	34	24	36	1.35	- 2.24	0.86	0	4	25	5	0	n.	V. H. Kirkendall
Bolivar	Folk	1,001	33	63.2	- 6.4	87	8†	36	26	42	0.46	- 3.64	0.46	0	1	28	2	0	ne.	Southwest Baptist College
Dean II	McDonald	1,000	30	70.6 ^a	- 0.1	95	15	36	23	43	0.61	- 3.01	0.53	0	2	25 ^a	0 ^a	1 ^a	.....	H. E. Dean
Eldon	Miller	1,034	31	64.4	- 4.9	92	9	35	26	42	1.28	- 2.52	0.63	0	3	15	13	2	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	65.8	- 3.5	94	9	30	24†	37	0.11	- 3.11	0.07	0	3	15	13	2	sw.	Robert Forsyth
Goodland	Iron	1,000	33	62.2	- 5.1	90	9†	29	24†	44	0.69	- 3.04	0.25	0	4	23	5	2	s.	F. M. Adams
Greenville	Wayne	381	5	.....	.....	.....	.....	.....	.....	.....	0.02	.....	0.02	0	1	27	3	0	w.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	0.40	.....	0.40	0	1	19	7	4	.....	A. W. Madison
Kosikongong	Oregon	1,958	26	67.2 ^a	- 3.7	91	13	40	24	29	0.58	- 2.91	0.45	0	3	19 ^a	5 ^a	5 ^a	.....	R. M. Hitt
Lebanon	Laclede	1,265	39	64.4	- 5.1	94	13	33	26	52	0.54	- 3.55	0.46	0	3	22	5	3	s.	Mrs. Lou Mcleare
Lockwood	Dade	1,074	21	67.6	- 3.7	92	13	41	24	38	0.30	- 3.70	0.15	0	3	25	6	0	nw.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	65.4	- 3.0	93	16	35	24	38	0.14	- 3.90	0.14	0	1	23	7	0	se.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	67.2	- 3.1	93	13	35	24	42	0.45	- 3.77	0.45	0	1	27	3	0	ne.	H. S. Fisheries Sta.
Rolla	Phelps	1,099	27	65.8	- 2.2	90	8†	36	26	37	0.51	- 3.33	0.51	0	1	24	6	0	se.	Prof. Elmo G. Harris
Salem (near)	Dent	1,173	23	62.6	- 6.9	90	9†	31	26	41	0.13	- 4.13	0.13	0	1	23	7	0	se.	A. C. Leach
Seligman	Barry	1,542	25	68.4 ^a	- 0.4	92	13	47	31	38	0.32	- 3.80	0.25	0	2	21 ^a	5 ^a	1 ^a	sw.	Floyd E. Sawyer
Seymour (near)	Webster	1,612	21	64.8	- 3.8	90	16	32	24	40	T.	- 4.58	T.	0	0	25	5	0	sw.	Im H. Hailey
Springfield	Greene	1,324	39	66.3	- 2.6	88	13	43	24	29	0.05	- 3.71	0.04	0	2	25	4	1	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	65.5	- 3.8	95	15	28	24	52	0.45	- 3.40	0.86	0	2	23	6	1	se.	.....
Southwest Plain																				
Appleton City	St. Clair	853	33	66.0	- 4.3	91	8	38	26	37	1.31	- 2.36	0.74	0	4	13	16	1	se.	W. G. Bigelow
Centerville	Johnson	872	40	67.2	- 2.9	91	9†	38	26	39	1.91	- 1.68	1.50	0	6	17	12	1	se.	E. A. Markey
Clinton	Henry	765	34	68.6	- 1.6	94	8†	38	26	41	2.50	- 1.92	2.05	0	2	18	11	1	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	64.8	- 3.5	93	8	37	25	37	5.29	- 0.33	3.78	0	5	8	6	16	n.	John H. Patterson
Lamar	Barton	980	40	67.0	- 3.6	92	16	41	22†	41	1.14	- 3.10	0.53	0	6	21	8	1	sw.	Jesse A. Mann
Lamonte	Pettis	867	26	66.1	- 4.0	94	8	37	26	39	1.73	- 2.77	1.30	0	5	16	14	0	sw.	J. E. Wheeler
Marshall	Saline	779	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. H. Black
Nevadatt	Vernon	862	34	67.3	- 1.8	90	8	39	26	36	2.64	- 1.52	1.56	0	4	21	6	3	s.	George A. Knapp
Warsaw	Benton	687	27	67.2	- 2.8	93	9	33	26	45	1.15	- 3.17	0.88	0	4	14	14	2	e.	Everett Martin
Section means and extremes	.....	.....	.....	66.7	- 3.2	94	8†	33	26	45	2.12	- 1.92	3.78	0	5	15	12	3	sw.	.....
Northwest Plateau																				
Bethany	Larrison	916	35	63.0	- 4.0	92	9	29	26	38	6.82	+2.96	1.85	0	9	18	8	4	se.	M. H. Moulton
Chillicothe	Livingston	779	18	63.3																

Daily Precipitation for September, 1928

Stations.	Drainage-basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Northeast Plain																																			
Boonville	Missouri											.58	2.43	.67		.04																	3.72		
Brunswick	Grand			.12								1.07	3.62	2.30														.12	.15	.05			7.43		
Clifton Hill	Chariton		.24									.03	2.35	.85	1.66	T.										.01		.10	.22	T.			5.46		
Columbia***	Missouri		.01									.06	.36	2.30	.57	T.												.03	T.				3.33		
Downing	Mississippi		T.									.42	1.80	4.25	.42	.57												.06		.37	.88	.27		9.04	
Fayette	Missouri		.03									.16	1.19	2.19															.01	.01	.03	.01		3.63	
Fulton	do			.12									.01	1.24	.01														.01		.02			1.41	
Gorin	Mississippi											.20	1.63	2.96	.13	.05							.01			.04		.38		.54	.41			6.35	
Hannibal***	do		.04									.21	1.89	1.39	.47	T.												.11	.01	.24	.06			4.42	
Hennault	Missouri			.03								.10	.70	.52		.21														.05	.02			1.64	
Jefferson City	do			.15								.05	1.20	.15																.01				1.56	
Kirksville	Mississippi	.10										.25	1.55	1.65	.75	.16													.30				4.76		
Louisiana	do			.10								.15	.90	.20	.05														.25	.20	.03			3.23	
Macon	Chariton			.16								.14	1.40	1.65	.33														.10	.20	.10			3.94	
Mexico	Mississippi			.09								.20	1.57	3.50	.02														.10	.12	.02			5.62	
Milan	Grand		T.									.24	3.75	.10	.10															.05	.50			6.90	
Monroe City	Mississippi			.21								.40	1.10	.82	1.28	T.													.14	.18	.13			4.26	
Pacific	Meramec			.07									.32			.46														.06	.08			0.99	
St. Charles	Missouri											.31	.39		.67															.14	T.	.12		1.63	
St. Louis (1)***	Mississippi		.16									.06	.01	.12	1.17															.10	.05	.03		1.70	
St. Louis (2)*	do		.23									.18	.03	.17	.57														.01	.12	.04	.04		1.39	
Shelbina	do			.08								.85	2.40	1.36	.07	.08														.12	.08	.16	T.	5.20	
Steifertville	do			.30								.15	.92	.95	.38	T.														.20	.50	T.		3.40	
Union	Meramec												.40	.35		.93														.03	.01			1.77	
Unionville	Chariton											.50	.80	3.85	1.75	.60														.40	.70			8.60	
Warrenton	Mississippi		T.	.56								T.	.28	.65		.04														.10	.06	.06		1.75	
Keokuk, Ia.***	do		.06									.34	.92	1.96	.14	T.														.15		.53	T.	4.18	
Southeast Lowlands																																			
Campbell	St. Francis															1.47																		1.47	
Cape Girardeau	Mississippi															.09																		0.09	
Caruthersville	do																															.13		0.22	
Dexter	St. Francis																																T.		1.01
Douglas	Black					T.							.06				.95																.03		0.07
Jackson	Mississippi																.04																		0.00
Murble Hill	Mississippi																																		0.16
Morehouse	do																.16																	0.14	
New Madrid	do																.12																.02	0.67	
Poplar Bluff	Black																.67																	0.14	
Stikeston	Mississippi		.02														.12																		0.14
Cairo, Ill.***	do																															.14			0.14
Ozark Plateau																																			
Arcadia	St. Francis															.25																		0.25	
Aurora	Neosho			.48		T.						.09																					.27		0.84
Birchtree (near)	Black				.13							.06				.30	.86																	1.35	
Bolivar	Osage															.46																		0.46	
Caplinger Mills	Osage				T.							.07				1.01																		1.10	
Deau	Neosho					.08						.53																				.02		0.61	
Eldon	Missouri													.63	.52																		.13	1.28	
Farmington	St. Francis												.07				.02																.02	0.11	
Fredericktown	do																																	T.	0.05
Gale	White																																.05	0.69	
Goodland	Black											.23				.25	.18															.03		0.02	
Greenville	St. Francis					.02																													0.40
Hailey	White																																		0.58
Koshkoning	Black					.08						.05				.45																.40		0.40	
Lebanon	Osage															.46		.02															.06	0.54	
Lockwood	do			T.								.10		.05																			.15	0.30	
Mountain Grove	White															.14																		0.14	
Neosho	Neosho											.45																							0.45
Owensville	Gauley													.50	.15																	.20		0.85	
Rolla	Meramec													.51																				0.51	
Salem (near)	do															.13																		0.13	
Seligman	Neosho					.07						.25																							

Daily Temperatures for September, 1928

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
Northeast Plain																																	
Brunswick	84	81	73	76	82	81	83	91	92	76	76	80	91	80	89	90	75	75	77	85	71	79	63	57	61	70	68	62	68	78	77.1		
	Maximum	84	81	73	76	82	81	83	91	92	76	76	80	91	80	89	90	75	75	77	85	71	79	63	57	61	70	68	62	68	78	77.1	
	Minimum	54	60	50	46	48	49	53	54	63	62	68	62	65	68	58	61	48	46	48	49	53	47	47	42	36	38	41	45	48	46	51.8	
Columbia	80	77	70	74	76	77	78	91	92	80	86	85	90	81	85	89	71	71	72	82	69	76	61	64	69	66	66	64	63	74	75.7		
	Maximum	80	77	70	74	76	77	78	91	92	80	86	85	90	81	85	89	71	71	72	82	69	76	61	64	69	66	66	64	63	74	75.7	
	Minimum	56	57	50	45	52	50	50	63	66	69	68	62	70	62	67	61	55	47	46	51	49	44	41	38	37	40	44	47	43	52.0		
Fayette	83	82	74	77	80	82	82	91	93	77	79	83	92	82	89	91	74	74	75	82	73	80	65	69	64	70	71	62	68	72	77.6		
	Maximum	83	82	74	77	80	82	82	91	93	77	79	83	92	82	89	91	74	74	75	82	73	80	65	69	64	70	71	62	68	72	77.6	
	Minimum	50	54	47	42	46	44	46	53	57	65	65	60	61	67	52	55	50	42	42	43	42	40	43	35	37	31	41	40	47	42	47.8	
Hannibal	82	77	70	75	77	77	80	90	93	83	74	84	89	83	86	90	71	70	72	79	70	77	58	56	57	65	65	52	60	71	74.4		
	Maximum	82	77	70	75	77	77	80	90	93	83	74	84	89	83	86	90	71	70	72	79	70	77	58	56	57	65	65	52	60	71	74.4	
	Minimum	59	60	52	46	49	48	49	61	68	69	67	62	70	62	67	57	53	46	49	46	52	47	40	38	36	32	43	40	46	42	51.6	
Jefferson City	87	75	72	76	77	79	79	90	93	87	95	89	91	89	87	89	71	73	73	83	70	62	66	61	68	67	67	73	74	71	77.8		
	Maximum	87	75	72	76	77	79	79	90	93	87	95	89	91	89	87	89	71	73	73	83	70	62	66	61	68	67	67	73	74	71	77.8	
	Minimum	56	59	52	46	48	48	50	54	63	69	68	63	63	72	57	58	48	46	49	50	43	40	40	41	38	40	49	51	41	51.9		
Kirksville	83	78	71	74	80	78	81	89	91	81	78	82	81	82	86	85	75	73	71	80	72	77	70	56	60	66	66	62	64	73	75.6		
	Maximum	83	78	71	74	80	78	81	89	91	81	78	82	81	82	86	85	75	73	71	80	72	77	70	56	60	66	66	62	64	73	75.6	
	Minimum	52	60	48	46	44	49	55	58	60	62	64	59	65	65	60	47	45	44	48	49	46	40	35	33	43	42	46	43	50.1			
Louisiana	85	80	70	75	78	81	81	94	95	84	83	85	92	88	86	90	82	72	72	80	73	85	73	60	60	68	67	63	62	72	77.9		
	Maximum	85	80	70	75	78	81	81	94	95	84	83	85	92	88	86	90	82	72	72	80	73	85	73	60	60	68	67	63	62	72	77.9	
	Minimum	53	55	58	50	46	48	50	54	65	60	65	63	70	73	60	55	55	40	40	40	40	56	39	46	33	33	28	49	35	48	60.2	
Macon	84	77	72	75	79	80	80	83	93	85	78	79	90	78	85	88	74	74	74	82	70	72	60	55	59	67	66	63	62	62	74.7		
	Maximum	84	77	72	75	79	80	80	83	93	85	78	79	90	78	85	88	74	74	74	82	70	72	60	55	59	67	66	63	62	62	74.7	
	Minimum	54	58	49	45	49	49	52	56	59	60	50	51	63	67	55	58	49	45	43	46	52	46	39	39	35	36	41	42	46	49	49.2	
Mexico	84	80	73	77	79	80	82	92	95	83	86	86	91	85	88	91	71	72	75	83	71	78	62	61	63	70	68	61	49	59	76	77.5	
	Maximum	84	80	73	77	79	80	82	92	95	83	86	86	91	85	88	91	71	72	75	83	71	78	62	61	63	70	68	61	49	59	76	77.5
	Minimum	54	57	50	44	48	48	49	61	70	68	62	63	69	58	58	52	43	43	46	47	46	41	38	39	33	42	40	48	41	50.2		
St. Louis(1)	81	78	71	74	78	79	89	92	87	90	87	93	90	85	90	73	71	73	78	71	75	62	66	62	66	67	65	68	73	76.9			
	Maximum	81	78	71	74	78	79	89	92	87	90	87	93	90	85	90	73	71	73	78	71	75	62	66	62	66	67	65	68	73	76.9		
	Minimum	61	63	56	56	58	56	61	64	68	70	69	65	74	70	64	58	58	53	52	55	59	53	49	43	46	44	49	49	53	50	57.9	
Unionville	82	75	70	75	80	80	82	87	90	80	75	82	85	80	83	82	72	74	72	80	70	77	66	58	60	65	64	65	64	72	74.9		
	Maximum	82	75	70	75	80	80	82	87	90	80	75	82	85	80	83	82	72	74	72	80	70	77	66	58	60	65	64	65	64	72	74.9	
	Minimum	52	60	46	42	64	50	55	58	65	62	60	62	64	56	56	44	43	43	46	46	47	38	40	34	32	34	42	44	45	49.3		
Warrenton	82	76	71	78	79	77	90	93	83	89	86	92	89	86	89	83	71	76	83	77	76	72	67	61	69	66	66	76	78	78.2			
	Maximum	82	76	71	78	79	77	90	93	83	89	86	92	89	86	89	83	71	76	83	77	76	72	67	61	69	66	66	76	78	78.2		
	Minimum	56	59	50	48	54	50	55	60	64	70	68	62	71	71	60	64	54	45	43	49	56	49	43	38	41	38	47	46	49	43	53.4	
Southeast Lowlands																																	
Campbell	81	83	77	76	75	80	85	89	90	91	89	89	93	90	87	89	79	74	75	82	81	75	71	70	72	71	78	80	71	75	80.6		
	Maximum	81	83	77	76	75	80	85	89	90	91	89	89	93	90	87	89	79	74	75	82	81	75	71	70	72	71	78	80	71	75	80.6	
	Minimum	56	55	58	46	50	50	51	55	55	62	67	62	62	70	64	57	62	50	45	40	46	49	49	34	43	41	44	48	54	48	52.4	
Caruthersville	83	82	74	77	80	82	82	91	93	77	79	83	92	82	89	91	74	74	75	82	73	80	65	69	64	70	71	62	68	72	77.6		
	Maximum	83	82	74	77	80	82	82	91	93	77	79	83	92	82	89	91	74	74	75	82	73	80	65	69	64	70	71	62	68	72	77.6	
	Minimum	50	54	47	42	46	44	46	53	57	65	65	60	61	67	52	55	50	42	42	43	42	40	43	35	37	31	41	40	47	42	47.8	
Hannibal	82	77	70	75	77	77	80	90	93	83	74	84	89	83	86	90	71	70	72	79	70	77	58	56	57	65	65	52	60	71	74.4		
	Maximum	82	77	70	75	77	80	90	93	83	74	84	89	83	86	90	71	70	72	79	70	77	58	56	57	65	65	52	60	71	74.4		
	Minimum	59	60	52	46	49	48	49	61	68	69	67	62	70	62	67	57	53															

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U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., OCTOBER, 1928. No. 10.

GENERAL SUMMARY.

October of 1928 was made up of quite fine autumn weather, although probably not so marked as the type of October, 1927. This October was warmer than normal in all of Missouri; wetter than normal in all parts except the Ozark region, while the sunshine was about normal for all sections. There were no damaging storms, and no frosts until the 20th to the 23d, and no hard frosts until the end of the month. On the whole the month was favorable for outdoor work, for fall sown grains, and for livestock.

The first part of the month averaged warmer than normal with an outstanding warm spell from the 8th to the 12th, when afternoon temperatures ranged from 90° to 94°. The latter part of the month was normal or mainly cooler than normal, with the first pronounced cool spell about the 20th. The month closed with the second cool snap that brought the first more or less general freeze of the season, although there were about 16 stations at which the temperature did not reach the freezing point.

The distribution of the rainfall was ample for needs, except more in parts of the Ozarks would have favored pastures and there was rather too much in parts of the southeastern counties. There were three or four well spaced rainy spells that left several days of fine weather between. The heaviest and most general rains occurred during the middle of the month, the 16th being the outstanding day in this respect, when 3 to 5 inches fell over most of the southeastern lowlands.

TEMPERATURE.

The monthly mean temperature for the State as shown by the records of 66 stations was 60.9°, or 3.5° above the normal. The highest local mean was 69.3°, at Dean, McDonald County, and the lowest was 54.2°, at Tarkio, Atchison County. The highest temperature, 94°, occurred at Oregon on the 8th, Centerville and Dean on the 9th, and Jefferson City on the 12th. The lowest, 22°, occurred at Goodland on the 31st.

PRECIPITATION.

The average precipitation for the State, based upon the reports of 98 stations, was 3.83 inches, or 1.08 inches more than the 56 years' average. It was the fourth consecutive wetter than normal October. The greatest monthly total was 8.97 inches, at Dexter, Stoddard County, and the greatest fall in consecutive 24 hours was 5.23 inches, at Dexter, on the 16th, and the next largest was 4.66 inches, at Greenville, Wayne County on the 16th.

MISCELLANEOUS PHENOMENA.

Fogs.—2d, 3d, 14th, and 27th.
Frost, light.—20th, 23d, 24th, 25th, and 28th.
Frost, heavy.—20th, 23d, 26th, 28th, and 31st.
Frost, killing.—Nearly general on the 31st.
Hail.—Small and unimportant on the 4th, 6th, and 7th.
Halos, lunar.—24th, 25th, 26th, and 29th.
Halos, solar.—6th, 8th, 11th, 25th, 26th, 28th, 29th, 30th, and 31st.
Thunderstorms.—1st, 3d, 4th, 5th, 6th, 7th, 8th, 12th, 15th, 16th, 17th, 21st, 26th and 27th.

OBSERVERS' REMARKS.

Clifton Hill.—First general killing frost on the 29th though the late corn was killed Sept. 25. Light hail on the 7th.
Downing.—Damage of \$150 by wind on the 5th to buildings, fruit and shade trees.
Gorin.—Ice formed on night of the 29th.
Kirkville.—Hail on the 7th.
St. Charles.—92 degrees on the 10th was the highest temperature recorded since 1888.
St. Louis University.—Record maximum temperature occurred on the 10th.
Warrenton.—Hail on the 8th.
Morehouse.—First real killing frost on the night of 30th—31st.

Farmington.—A delightful month. On the 31st forest trees were still full of leaves and many of them still green.
Hailley.—Hail on the 6th. Killing frost on the 30th.
Lockwood.—A warm October; no killing frost; ample moisture. Wheat up and looks fine; acreage large. Corn good; some gathering.
Salem.—High southeast wind on the 3d. Dense fog on the 14th until 8.30 a. m.
Seymour.—Sleet on the 29th.
Appleton City.—Month cool and changeable; good for outdoor and farm work.
Lamonte.—Corn husking made good progress. Wheat looks good. All farm work well advanced. Have had only light frosts so far.
Nevada.—No killing frost yet. Aurora observed about 4 a. m. of the 23d.
King City.—Hail on the 4th. Heavy fog on the 27th.
Oregon.—Strong wind and dusty on the 10th. Faint aurora on the 18th. Fog in the morning of the 27th.

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PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

	Mean barometric pressure (Sea-level)	Mean relative humidity		Sunshine		Wind					
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total move- ment miles	Average hour- ly velocity	Max. velocity			Date
								Miles per hour	Direction		
Columbia.....	30.06	83	65	238	69	4,699	6.2	28	w.		4
Hannibal.....	30.05	81	..	..	..	5,149	6.9	32	sw.		4
Kansas City.....	30.05	74	58	227	66	6,277	8.4	27	w.		4
St. Joseph.....	30.04	78	63	198	57	5,133	6.9	33	nw.		4
St. Louis.....	30.08	76	58	210	61	8,074	10.9	37	s.		8
Springfield.....	30.08	81	56	242	70	6,737	9.1	32	s.		8
Cairo, Ill.....	30.11	84	64	..	..	4,666	6.3	20	se.		22
Keokuk, Iowa.....	30.07	79	64	186	54	4,546	6.1	25	sw.		4

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR OCTOBER.

Year	Temperature				Precipitation				Number of days			
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With .01 inch or more	Clear	Partly cloudy	Cloudy
1888.....	53.6	-3.5	89	24	2.65	+0.21	....	....	7	..	..	..
1889.....	53.8	-3.3	91	27	2.50	+0.06	....	....	6	..	..	..
1890.....	54.8	-2.3	91	22	2.24	-0.20	....	....	6	..	..	..
1891.....	55.7	-1.4	98	19	1.11	-1.33	....	....	3	..	..	..
1892.....	57.5	+0.6	95	16	2.28	-0.16	2.40	0	5	16	7	8
1893.....	56.7	-0.4	95	16	0.99	-1.45	2.81	10	20	8	3	3
1894.....	57.6	+0.5	94	18	1.74	+0.70	3.52	T.	6	17	8	6
1895.....	54.2	-5.9	89	15	0.35	-2.09	1.20	T.	2	21	6	4
1896.....	54.1	-3.0	90	19	2.48	+0.04	2.68	0	5	19	6	6
1897.....	62.5	+5.4	99	23	0.71	-1.73	1.70	0	3	22	6	3
1898.....	53.5	-3.6	94	19	4.23	+1.79	4.51	1.4	8	11	7	13
1899.....	62.4	+5.3	100	24	2.93	+0.49	2.53	0	5	20	6	5
1900.....	62.4	+5.3	92	25	4.18	+1.74	4.04	0	7	17	7	7
1901.....	60.1	+3.0	96	24	1.64	-0.50	2.98	0	6	18	8	5
1902.....	59.5	+2.4	88	28	2.52	+0.08	2.69	0	5	21	5	5
1903.....	57.2	+0.1	90	19	2.85	+0.41	3.80	0	5	19	6	6
1904.....	57.6	+0.5	90	19	0.90	-1.54	2.46	0	3	20	7	4
1905.....	55.1	-2.0	90	20	4.64	+2.20	7.47	0.3	5	17	6	8
1906.....	56.3	-0.8	94	17	0.87	-1.57	1.50	0	10	15	7	9
1907.....	56.7	-0.4	94	18	2.90	+0.46	3.46	0	7	19	5	7
1908.....	56.3	-0.8	92	21	2.74	+0.30	4.90	0.8	5	18	6	7
1909.....	57.2	+0.1	96	20	2.77	+0.33	2.57	T.	6	19	5	7
1910.....	59.4	+2.3	94	15	2.71	+0.27	5.50	0	5	22	4	5
1911.....	56.9	-0.2	96	25	3.30	+0.86	5.12	0.2	8	11	7	13
1912.....	59.1	+2.0	97	21	3.83	+1.39	5.12	0.7	6	20	5	6
1913.....	54.7	-2.5	93	11	4.46	+1.94	2.80	3.3	9	15	6	10
1914.....	59.2	+2.0	88	19	4.54	+2.04	5.40	0	7	14	6	11
1915.....	59.3	+2.9	95	22	1.19	-1.45	1.97	0	3	23	5	3
1916.....	58.0	+0.7	95	20	2.17	-0.54	3.90	0	6	18	5	8
1917.....	49.8	-7.4	93	12	1.16	-1.49	2.00	0.2	6	16	8	7
1918.....	60.6	+3.5	95	28	3.37	+0.71	5.61	0	7	14	6	11
1919.....	58.4	+1.4	98	17	6.74	+3.92	4.91	0	11	10	7	14
1920.....	61.3	+4.3	93	18	2.89	+0.25	2.45	T	7	17	6	8
1921.....	57.9	+0.8	92	24	2.19	-0.40	2.32	0	5	21	5	5
1922.....	59.9	+2.4	97	18	2.00	-0.77	3.00	0	5	20	5	6
1923.....	53.0	-4.4	89	17	3.39	+0.64	2.76	0.1	9	15	5	11
1924.....	61.8	+4.4	92	21	1.22	-1.53	2.73	0	4	22	5	4
1925.....	48.6	-8.8	92	-	3.45	+2.10	3.12	2.4	10	8	8	15
1926.....	57.3	-0.1	93	21	4.67	+1.92	3.85	0	9	14	6	11
1927.....	60.9	+3.5	93	26	4.72	+1.97	8.85	0	5	22	5	4
1928.....	60.9	+3.5	94	22	3.83	+1.05	5.23	0	8	15	8	8

Climatological Data for October, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain																				
Brunswick	Chariton	652	48	59.9	+ 4.7	91	12	31	31	35	3.04	+0.31	1.10	0	11	16	3	12	se.	O. K. Benecke
Clifton Hill	Randolph	731	28	59.3	+ 2.1	89	8	28	29	35	3.17	+1.05	1.08	0	11	16	7	8	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	60.8	+ 4.2	89	10	34	23	33	2.86	+0.44	0.73	0	9	9	15	7	se.	U. S. Weather Bureau
Downing	Schuyler	876	6	57.3 ^a	.....	88	12	26	29	40	5.23	+3.03	1.20	0	11	15 ^a	6 ^a	7 ^a	w.	James Taylor
Payette	Howard	661	47	59.1	+ 2.4	91	9	25	31	43	3.11	+0.63	0.97	0	11	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	61.3	+ 3.6	90	11	26	31	37	2.79	+0.04	1.06	0	9	8	19	4	.....	Chamber of Commerce
Corlin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	5.26	+2.88	1.29	0	10	9	7	15	se.	J. W. Pulliam
Hannibal	Marion	534	35	60.2	+ 4.2	89	10	33	31	32	3.97	+2.33	0.90	0	9	14	7	10	s.	U. S. Weather Bureau
Jefferson City	Cole	557	39	63.6	+ 6.9	94	12	28	31	46	1.79	-0.80	0.80	0	6	16	14	1	s.	Mrs. Frank Kilgell
Kirksville	Adair	969	38	58.2	+ 3.5	87	8 [†]	28	29	38	3.85	+1.12	1.08	0	10	15	3	13	nw.	Prof. J. S. Stokes
Louisiana	Pike	469	33	60.0	+ 3.7	90	10 [†]	26	31	40	4.53	+1.90	1.10	0	8	16	14	11	w.	Stark Bros. Nurseries
Macon	Macon	875	28	58.5	+ 1.7	89	10 [†]	27	29	37	4.58	+1.85	1.11	0	11	16	4	11	se.	W. C. Brown
Mexico	Andrahn	800	38	59.2	+ 2.8	89	10 [†]	30	29	34	3.07	+0.69	0.70	0	9	20	2	9	se.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	3.44	.....	0.75	0	11	15	10	6	nw.	J. S. Conway
St. Charles	St. Charles	456	39	62.2	+ 4.1	92	10	30	31	37	3.42	+0.75	0.92	0	6	12	10	9	s.	L. C. Saeger
St. Louis (1)	St. Louis City	568	53	62.2	+ 3.4	88	12	37	29	27	2.24	-0.48	0.90	0	10	17	5	9	s.	U. S. Weather Bureau
St. Louis (2)	do.	578	15	61.7	+ 2.8	88	12	37	30 [†]	26	2.39	-1.40	0.67	0	10	16	5	10	se.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	4.40	+1.68	1.09	0	9	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	59.2	+ 1.5	89	10 [†]	27	29	36	5.22	+3.10	0.95	0	11	10	15	6	n.	Frank Hall
Unionville	Putnam	1,062	34	58.0	+ 2.6	88	8 [†]	23	29	36	5.00	+2.54	1.20	0	10	13	4	14	sw.	Geo. W. Davis
Warrenton	Warren	816	45	61.6	+ 6.0	91	10 [†]	31	31	32	3.53	+0.67	1.43	0	9	13	12	6	sw.	Prof. A. W. Ebeling
Kookuk, Iowa	Lee, Ia.	614	55	58.5	+ 3.1	86	12	31	29	28	5.91	+3.65	1.65	0	9	10	8	13	s.	U. S. Weather Bureau
Section means and extremes	extremes	.....	.....	60.0	+ 3.5	94	12	23	29	46	3.76	+1.24	1.43	0	10	14	8	9	se.	.....
Southeast Lowlands																				
Campbell	Dunklin	314	2	62.8	.....	91	10	34	20	42	8.41	.....	8.00	0	9	12	8	11	s.	Jeff. King
Caruthersville	Pemiscot	265	31	64.9	+ 3.2	91	10	39	29 [†]	30	7.18	+1.22	2.05	0	8	18	5	8	n.	Sam Smith
Doniphan	Ripley	344	23	62.3	+ 3.9	87	10 [†]	28	31	40	6.16	+3.11	2.57	0	5	17	11	3	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	60.4	+ 2.4	87	10	26	31	39	6.32	+3.10	3.36	0	7	8	8	15	s.	John G. Putz
Marble Hill	Bollinger	470	32	62.2	+ 4.2	91	13	26	31	42	7.85	+5.20	4.50	0	7	14	9	8	s.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	7.13	+4.53	2.72	0	8	18	9	4	sw.	John A. Spence
Poplar Bluff	Butler	329	23	62.8	+ 2.5	89	9 [†]	29	31	40	5.70	+2.50	1.90	0	10	22	2	7	s.	J. H. Wolpert
Sikeston	Scott	318	22	63.4	+ 4.6	92	13	29	31	42	6.04	+3.44	2.20	0	9	15	6	10	s.	Glen R. Fisher
Cairo, Ill.	Alexander, Ill.	358	52	63.4	+ 3.0	88	10	38	31	29	5.13	+2.37	1.59	0	8	13	8	10	s.	U. S. Weather Bureau
Section means and extremes	extremes	.....	.....	62.8	+ 3.4	92	13	26	31	42	6.66	+3.56	5.23	0	8	15	8	8	s.	.....
Ozark Plateau																				
Arcadia	Iron	926	46	59.1	+ 3.0	87	13	24	31	42	3.34	+0.27	0.88	0	7	20	0	11	s.	Arcadia College
Aurora	Lawrence	1,370	37	62.2	+ 3.7	84	4 [†]	33	31	33	3.08	-0.19	1.10	0	8	14	10	7	se.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	61.6	+ 3.4	89	13	28	30	41	3.93	+1.35	1.05	0	9	22	3	6	s.	V. H. Kirkendall
Bolivar	Polk	1,071	33	.....	.....	.....	.....	.....	.....	.....	2.86	-0.45	0.64	0	7	19	9	3	se.	Southwest Baptist College
Dean II	McDonald	1,000	30	69.3	+ 9.4	94	9	29	24	44	2.83	-0.66	1.25	0	4	21	6	4	sw.	H. E. Dean
Eldon	Miller	934	31	61.3	+ 3.6	91	10 [†]	28	31	40	1.39	-1.61	0.65	0	4	12	13	6	sw.	E. H. Shepherd
Farmington	St. Francois	918	16	61.4	+ 5.0	89	10	25	31	42	2.42	-0.47	1.38	0	8	11	17	3	sw.	Robert Forsyth
Goodland	Iron	1,000	33	59.6	+ 3.8	90	13	22	31	42	3.49	+0.27	1.51	0	7	15	7	9	s.	F. M. Adams
Greenville	Wayne	381	5	60.8 ^b	.....	91	12	25	31	42	7.32	.....	4.66	0	7	16	6	9	s.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	1.92	.....	0.90	0	5	21	5	5	w.	A. W. Madison
Koshkonong	Oregon	958	26	62.4 ^b	+ 2.4	86	10 [†]	32	31	33	3.92	+1.01	0.85	0	8	15 ^b	5 ^b	9 ^b	.....	R. M. Hitt
Lebanon	Laclede	1,265	39	61.4	+ 3.4	90	10	29	31	39	1.96	-1.30	0.56	0	5	19	5	7	s.	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	62.7	+ 4.1	89	10	33	31	37	3.25	-0.20	0.76	0	9	17	5	9	se.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	61.3	+ 3.7	90	13	30	23	41	3.35	+0.30	1.53	0	6	18	11	2	se.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	63.4	+ 4.2	90	9	29	31	42	4.70	+1.31	1.17	0	10	24	4	3	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	61.8	+ 5.9	91	10	27	31	39	1.22	-1.73	0.65	0	4	11	15	5	s.	F. H. Lane
Salem (near)	Dent	1,173	23	60.6	+ 2.6	89	10	26	31	44	1.87	-2.01	0.89	0	8	15	11	5	s.	A. C. Leach
Seligman	Barry	1,542	25	67.4 ^c	+ 9.1	90	9	32	23	41	2.10	-0.84	0.82	0	6	15 ^c	8 ^c	1 ^c	sw.	Floyd E. Fawcett
Seymour (near)	Webster	1,612	21	62.1	+ 4.6	87	10	27	23 [†]	43	1.61	-1.40	0.69	0	5	17	12	2	s.	Ira H. Hailey
Springfield	Greene	1,324	39	62.7	+ 4.5	86	12	26	31	31	1.69	-1.11	0.45	0	11	16	12	3	s.	U. S. Weather Bureau
Section means and extremes	extremes	.....	.....	62.3	+ 4.5	94	9	22	31	44	2.91	-0.42	4.66	0	7	17	8	6	s.	.....
Southwest Plain																				
Appleton City	St. Clair	853	33	62.2	+ 3.1	89	8 [†]	32	31	38	3.11	+0.77	1.10	0	7	11	19	1	sw.	W. G. Bigelow
Centerview	Johnson	872	40	58.2 ^d	+ 0.1	94	9	32	31	42	2.47	-0.08	1.50	0	5	11	31	6 ^d	nw.	E. A. Markey
Clinton	Henry	765	34	64.3	+ 5.7	93	9	36	29 [†]	35	3.16	+0.35	1.28	0	6	17	8	6	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	60.0	+ 4.0	93	8	33	31	38	3.05	+0.46	1.45	0	4	11	5	15	n.	John H. Patterson
Lamar	Barren	980	40	62.6	+ 3.7	90	9	35	23	38	3.45	+0.32	1.40	0	9	18	4	9	se.	Jesse A. Mann
Lamonte	Pettis	867	26	63.2	+ 5.2	93	8 [†]	32	23	39	2.68	+0.35	1.35	0	7	12	16	3	sw.	J. E. Wheeler
Marshall	Saline	779	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. H. Black
Nevaduff	Vernon	862	34	62.6	+ 5.3	89	9	35	23 [†]	36	2.75	-0.33	1.58	0	5	17	5	9	s.	George A. Kaupp
Warsaw	Benton	687	27	64.2	+ 5.1	92	9 [†]	28	31	42	3.56	+0.25	1.33	0	6	12	11	8	s.	Everett Martin
Section means and extremes	extremes	.....	.....	62.2	+ 4.0	94	9	28	31	42	3.08	+0.26	1.58	0	6	14	9	8	sw.	.....
Northwest Plateau																				
Belhany	Harrison	916	35	57.9	+ 3.2	90	8	27	29	37	5.85</									

Daily Precipitation for October, 1928

Stations.	Drainage-basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Northeast Plain																																	
Boonville I	Missouri		.12			.20			.31								.83	.34	.02				.93	.05				.05					2.85
Branswick I	Grand		.25		.38			.07	.10							.05	.44	.45				.06	1.10	.08				.06					3.04
Clifton Hill	Chariton	.33	.06		.25	.27		.20							.02	.45	.24	.23					1.08				.04						3.17
Columbia***	Missouri	.28		.73				.26							T	.71	.01	.13				.25	.47				.02						2.86
Downing	Mississippi				.08	.16		T	.40						1.20	.08	.56				.48	1.05					.27	.85					5.23
Elyette I	Missouri	.32		.01	.55			.05								.47	.12	.03					.97	.05				.12				.42	3.11
Enlow	do		.19			1.06			.40	.04						.24	.34	.09					.36					.07					2.79
Gorin	Mississippi	.03			.68			.26							.36	.71	.01	.90				.36	.66					1.29					5.26
Hamid I	do	.50			.90			.88						T	.46	T	.27				.08	.54						.26	.08				3.97
Hermann I	Missouri		.33			.80			.40							.40			.60			.10											2.63
Jefferson City I	do		.10			.80										.20			.25			.40							.04				1.79
Kirksville	Mississippi					.16		.35					.35	.37		.55	.12	.68				.08	1.08				.11						3.85
Louisiana	do	.20	.15			1.10			1.00						1.00		.30						.50				.28						4.53
Marion I	Chariton		.50			.85		.64							.02	.40	.45	.35				1.11	.07			.03	.16						4.58
Mexico I	Mississippi		.25			.70		.55								.61	.03	.26					.55	.02				.10					3.07
Milau I	Grand					.25									.30	.40	.10			1.20		1.25											3.50
Monroe City	Mississippi	.41	.07		.18	.03		.67								.12	.68	.23				.75					.06	.24					3.44
Pacific I	Meramec		.15		.18					.02						.02	.98	.92	.30				12	.06				T					2.75
St. Charles	Missouri	T		.27		.49		.90								.41	.92	T					.43				T						3.42
St. Louis (1)***	Mississippi	.07		.90	.05			.50								.01	.31	.26				T	.11				.01	.02					2.24
St. Louis (2)*	do	.09		.60	.04			.67								.04	.42	.34					.13				.01	.05					2.39
Shelburn I	do		.34			.73		1.09						T	T	.82	.15	.12					.81	.15				.19					4.40
Stellerville	do	.35				.85	.20	T	.70						.35	T	.30	.30	.45			T	.95				.25	.52					5.22
Union I	Meramec		.07	.04	.32	.07		.01								.01	.10	.85	.35				.07				.02						1.91
Unionville	Chariton	T				.20		T							.30	.10	.65	.50	1.05	T		.10	1.10				.25	.75					5.00
Warrenton	Mississippi	.08	.16	.04		.85		1.43								.24	T	.45					22					.06					3.53
Keokuk, Ia.***	do	T			1.65			.70							T	.37		.11	T			.28	.51				.95	T					5.91
Southeast Lowlands																																	
Campbell I	St. Francis			.32	.90	.30										3.00	2.25					.15	.75				.55		.19			8.41	
Cape Girardeau I	Mississippi		.29	.08	.26	.24										.05	5.54	.72	T				.18	.65				.65					8.66
Caruthersville I	do		.12	1.86	.28											1.53	2.05						.78				.53		.03				7.18
Dexter I	St. Francis			.13	.81	.21										T	5.23	1.03					16	.65				.09		.06			8.97
Doniphan	Black	T	1.66	T	.18												2.57												.25				6.16
Jackson	Mississippi		.22	.38		.43										1.24	3.36	.19					.50				.50						6.32
Marble Hill	Mississippi			.90	.20											50	4.50	.30					.90				.55						7.85
Morehouse	do		1.14			.39										1.04	2.72	.36					.81				.63		.04				7.13
New Madrid I	do			.06	1.35	.26										10	1.64	2.20	.26				10	.52			.22	.35	.05	.03			7.14
Poplar Bluff	Black			.26	.82	.17										1.90	1.05	.07					.48	.42			.40			.13			5.70
Sikeston I	Mississippi			.11	1.00	.45										16	2.20	1.42	.05					.60			.05						6.04
Calro, Ill.***	do			.73	.07	.91			T							.67	1.36	.35					.45				.59		T				5.13
Ozark Plateau																																	
Arcadia I	St. Francis			.08	T	.88										T	.81	.71	.28				.12				.46						3.34
Aurora	Neosho	T	.07			1.10			.10							T	1.00					.06	.12				.42		.21				3.08
Birchtree (near)	Black		.16	.46		.25										.50	.76	1.05					.25				.40		.10				3.93
Bolivar	Osage	T				.55	.25	.05									.62		.25					.64					.50				2.86
Captlinger Mills	Osage	.04	T	T	T	T	.06	.04								.20	.71	.31				T	1.26						.04				2.66
Dean	Neosho				.65	T	.63										1.25							.30									2.83
Eldon I	Missouri				.50			.09									15						.65										1.39
Farmington	St. Francis		.03	.16		.09		.10								T	1.38	.32				T	.07				.27						2.42
Fredericktown I	do				.44	.96	.15										1.03	.94					.36										4.85
Galeville I	White				.48			.25									.32	.38					.15						.25				1.83
Goodland	Black			.47													.32						.15										3.49
Greenville	St. Francis		T	1.20		.22										.55	1.51	.45					.20				.30		.01				7.32
Halley	White					.90										T	4.66	.30					.50				.39		.12				1.92
Koshkonong	Black		.19	.71		.77										.25	.85	.55					.23						.37				3.92
Lebanon I	Osage		T	.56												T	T		.38	T				.32	T				.38		.32		1.96
Lockwood	do	.10	T					.20	.55								.70	.53					.14	.76			.18		.09				3.25
Mountain Grove I	White		.08	1.53		.65										T	.68						.30						.11				3.35
Neosho	Neosho	.05	.15	T	T	.95	T	.68								1.17	.97					.07	.47				.11		.08				4.70
Owensville I	Gasconade				.75												.42	.12															1.29
Rolla I	Meramec			T												.27																	

Daily Temperatures for October, 1928

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean
Northeast Plain																																
Brunswick §§.....	72	78	81	87	76	82	78	90	88	90	88	91	60	75	78	79	64	71	57	72	76	56	69	70	63	63	53	59	47	52	69	71.5
Maximum.....	72	78	81	87	76	82	78	90	88	90	88	91	60	75	78	79	64	71	57	72	76	56	69	70	63	63	53	59	47	52	69	71.5
Minimum.....	49	49	52	60	50	53	55	55	53	55	66	67	53	54	59	65	59	50	41	38	42	42	35	40	41	39	44	37	32	32	31	48.3
Columbia.....	61	75	79	87	75	79	80	88	84	89	87	88	72	76	80	79	72	70	57	62	57	64	57	67	68	59	61	56	51	46	59	70.8
Maximum.....	61	75	79	87	75	79	80	88	84	89	87	88	72	76	80	79	72	70	57	62	57	64	57	67	68	59	61	56	51	46	59	70.8
Minimum.....	56	53	62	64	61	55	59	66	55	65	67	69	55	55	65	65	52	49	42	37	34	39	34	37	39	43	40	38	35	35	50.8	
Fayette.....	65	80	80	89	79	83	81	90	91	90	88	88	69	77	82	80	73	72	61	71	76	65	71	72	65	65	63	53	49	53	61	73.6
Maximum.....	65	80	80	89	79	83	81	90	91	90	88	88	69	77	82	80	73	72	61	71	76	65	71	72	65	65	63	53	49	53	61	73.6
Minimum.....	43	48	48	55	45	45	51	56	48	50	60	63	54	56	62	57	45	39	31	24	40	30	34	34	36	40	32	31	23	25	44.6	
Hannibal.....	65	76	78	85	77	83	78	88	85	89	86	88	76	75	79	80	73	67	54	65	75	58	68	67	59	55	52	48	45	47	58	70.3
Maximum.....	65	76	78	85	77	83	78	88	85	89	86	88	76	75	79	80	73	67	54	65	75	58	68	67	59	55	52	48	45	47	58	70.3
Minimum.....	56	50	56	62	53	52	58	63	57	65	69	70	55	55	64	65	54	49	41	37	33	39	36	37	37	35	41	36	33	36	33	50.0
Jefferson City §§.....	85	77	87	89	79	88	90	93	93	92	94	89	85	85	87	84	81	70	73	82	70	67	70	70	67	60	54	52	54	61	78.1	
Maximum.....	85	77	87	89	79	88	90	93	93	92	94	89	85	85	87	84	81	70	73	82	70	67	70	70	67	60	54	52	54	61	78.1	
Minimum.....	58	53	63	60	52	51	52	59	61	61	62	65	61	66	61	64	62	51	45	31	36	45	33	34	40	39	45	34	26	26	28	49.1
Kirksville.....	72	70	78	86	76	80	76	87	86	87	85	86	77	71	72	76	65	67	61	68	70	63	69	67	62	51	49	45	48	53	68	70.8
Maximum.....	72	70	78	86	76	80	76	87	86	87	85	86	77	71	72	76	65	67	61	68	70	63	69	67	62	51	49	45	48	53	68	70.8
Minimum.....	42	44	51	61	58	53	38	61	55	64	66	67	48	52	56	62	52	47	39	36	48	40	35	39	37	35	40	33	28	32	30	46.7
Louisiana.....	66	75	78	83	78	80	80	85	85	90	88	90	82	86	75	80	78	70	60	65	72	70	65	68	65	66	58	55	50	48	58	72.5
Maximum.....	66	75	78	83	78	80	80	85	85	90	88	90	82	86	75	80	78	70	60	65	72	70	65	68	65	66	58	55	50	48	58	72.5
Minimum.....	52	46	45	56	56	48	56	62	54	58	65	64	42	55	55	66	62	52	45	33	46	48	32	45	43	28	40	36	28	28	28	47.5
Macon §§.....	55	76	77	37	70	79	78	86	86	89	87	89	62	71	79	78	65	67	56	69	72	53	72	70	67	56	51	47	49	49	48	69.9
Maximum.....	55	76	77	37	70	79	78	86	86	89	87	89	62	71	79	78	65	67	56	69	72	53	72	70	67	56	51	47	49	49	48	69.9
Minimum.....	48	45	47	58	48	50	53	61	53	55	65	68	52	53	58	62	60	45	40	32	41	41	35	45	47	35	40	34	27	30	29	47.1
Mexico §§.....	62	77	81	87	77	84	79	87	87	89	87	89	65	73	80	80	75	69	59	48	73	47	68	68	61	60	54	51	47	49	60	70.7
Maximum.....	62	77	81	87	77	84	79	87	87	89	87	89	65	73	80	80	75	69	59	48	73	47	68	68	61	60	54	51	47	49	60	70.7
Minimum.....	44	48	50	60	49	50	52	54	54	60	63	65	58	55	69	65	62	50	42	37	41	43	34	37	37	36	41	35	30	32	32	40.8
St. Louis(1).....	66	79	72	79	75	83	84	80	85	87	86	88	80	77	76	73	74	68	59	66	71	61	67	68	61	60	62	52	49	48	59	70.6
Maximum.....	66	79	72	79	75	83	84	80	85	87	86	88	80	77	76	73	74	68	59	66	71	61	67	68	61	60	62	52	49	48	59	70.6
Minimum.....	52	54	62	65	58	67	60	67	63	65	66	66	73	58	65	65	58	54	48	45	50	45	47	49	43	48	40	37	38	38	53.5	
Unionville.....	70	76	80	86	78	80	77	88	85	88	84	88	77	72	70	70	66	65	64	70	72	62	65	65	58	46	54	50	45	50	56	69.6
Maximum.....	70	76	80	86	78	80	77	88	85	88	84	88	77	72	70	70	66	65	64	70	72	62	65	65	58	46	54	50	45	50	56	69.6
Minimum.....	52	40	56	60	54	52	47	60	52	64	64	54	46	50	60	62	50	46	38	35	50	40	34	48	35	34	30	33	23	32	32	46.5
Warrenton.....	69	78	81	83	78	85	87	84	87	91	88	91	81	75	78	77	72	66	68	74	66	66	65	63	61	57	53	47	45	61	72.7	
Maximum.....	69	78	81	83	78	85	87	84	87	91	88	91	81	75	78	77	72	66	68	74	66	66	65	63	61	57	53	47	45	61	72.7	
Minimum.....	52	52	60	63	52	63	57	59	59	60	64	64	62	57	63	66	62	51	44	38	50	45	34	42	39	39	47	36	32	35	31	50.6
Southeast Lowlands																																
Campbell.....	84	78	70	82	81	84	85	87	87	91	87	86	90	87	75	77	78	73	71	68	73	65	66	69	68	70	74	67	59	55	62	75.8
Maximum.....	84	78	70	82	81	84	85	87	87	91	87	86	90	87	75	77	78	73	71	68	73	65	66	69	68	70	74	67	59	55	62	75.8
Minimum.....	42	60	62	64	65	48	48	49	61	54	56	59	58	62	64	62	61	50	44	34	42	48	46	38	41	40	48	40	38	34	36	49.8
Caruthersville.....	83	77	71	83	81	81	83	86	88	91	87	87	90	88	75	77	75	72	72	66	72	64	65	69	68	69	64	51	51	57	74.6	
Maximum.....	83	77	71	83	81	81	83	86	88	91	87	87	90	88	75	77	75	72	72	66	72	64	65	69	68	69	64	51	51	57	74.6	
Minimum.....	53	66	65	66	66	55	56	57	65	62	60	66	65	67	68	64	64	52	51	45	51	51	40	45	44	46	54	42	39	42	59	55.2
Doniphan.....	82	78	80	83	7																											

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Nat. Hist.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, MO., NOVEMBER, 1928. No. 11.

GENERAL SUMMARY.

The outstanding feature of November, 1928, in Missouri, was the excessive rainfall. There was nothing unusual about the other elements, except probably the sunshine was less than normal as there were four distinct rain periods.

It was the wettest November in about 60 years, considering the State as a whole. All sections were wetter than normal, except that part of the Ozarks sloping to the northward from about Dade and adjacent counties northeast to the Mississippi River; and the east-central counties reaching north to Marion. Some of these counties had actually less than the normal amount. The deficiency, however, disappears under the large excess for the remainder of the State.

The monthly totals as well as the 24-hour falls were larger than in any other November of record, and equaled the amounts usually associated with wettest spring and early summer months. The largest monthly local total was 10.88 inches at Centerview, Johnson County, but several other stations had amounts nearly as large. In other years the only November rainfall that compares with this was in 1847 when 8.63 inches fell at St. Louis; and in 1879, with 8.90 inches at Savannah, 8.72 inches at Ironton, and 8.45 inches at St. Joseph.

Another unusual feature, although probably a natural corollary connected with excessive rainfall any month in this State, was the extensive river floods, and a record for November. All rivers in the northern part of the State were out of banks once or twice; the Blackwater, the Osage, and the Missouri River from Lexington down extensively inundated the lowlands. The damage and loss to corn and growing wheat, washed away soil, and highways, was very heavy. Traffic of all lines was held up for one to two days. It is not practicable to even estimate the loss in dollars. The State Highway Department alone reported that the damage would run near the million mark.

TEMPERATURE.

The monthly mean for the State, 67 stations reporting, was 44.6°, and practically normal. The temperature distribution was quite uniform. The highest temperature was 79° at Marshall on the 15th. The warmest days were generally the 15th, 16th, and 17th. The lowest temperature was 9° at Neosho on the 26th. There were several cool periods but the 20th, 25th, and 26th were the only real cold days.

PRECIPITATION.

The average for the State, 99 stations reporting, was 5.10 inches, or 2.75 inches more than the 56 years' average, and the largest excess of record for the month of November. The precipitation was unevenly distributed. It was about normal and less in most of the Ozarks, and the east-central counties. In the southeast amounts were subnormal in a few cases, normal to excessive in others. On the other hand, most of the northern, central, and west-central counties received heavy to excessive amounts ranging in most cases from two to five times the normal. There were about four distinct rain periods: 1st to 3d; 7th to 9th; 14th to 19th, and 27th to 30th. There were excessively damaging downpours on the 16th, and 17th. The following table gives some of the heavier amounts:

Station.	15th.	16th.	17th.	24 hrs.	Greatest in 48 hrs.	72 hrs.
Waverly .....	.06	1.45	6.33	6.33	7.78	7.84
Concordia		2.90	6.30	6.30	9.20	....
Centerview		6.52	3.22	6.52	9.74	....
Harrisonville		3.30	6.30	6.30	9.60	9.63
Lamonte	T.	3.80	1.80	3.80	5.60	....
Marshall		4.60	2.52	4.60	7.12	....
Clinton		2.30	1.52	2.30	3.82	....
Chillicothe .....	.02	1.02	4.25	4.25	5.27	5.36
Kidder .....		.85	3.58	3.58	4.43	4.76
Lexington		1.70	5.54	5.54	7.24	....
Kansas City		5.70	.47	5.79	....	....
Macon		1.09	4.50	4.50	5.59	....
Kirkville		1.85	3.25	3.25	5.10	....

The result was a severe loss to crops and bridges and other property in the valleys of the One-Hundred-and-Two River; the Grand, Charitan, the Blackwater, the Osage, and the Missouri River from about Lexington to its mouth, and most of the smaller streams of the northeast part of the State.

The snowfall was less than normal. Appreciable amounts remained on the ground for a short time in the northwestern counties and the northern border. Elsewhere it melted as fast as it fell, as a rule.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—2d, 5th, 10th, 15th, 28th, and 29th.
Frosts, killing.—3d, and 4th, and St. Louis on the 29th.
Halos, lunar.—20th, 23d, and 26th. Solar.—13th, 15th, 21st, 26th, and 30th.
Sleet, light.—2d, 3d, 17th, 18th, 19th, 26th, 27th, and 20th.
Thunderstorms.—15th, 16th, and 17th.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations	Mean barometric pressure at sea level	Relative humidity		Sunshine		Wind				
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total movement miles	Average hourly velocity	Max. velocity		
								Miles per hour	Direction	Date
Columbia	30.12	85	68	140	46	5,535	7.7	35	s.	16
Hannibal	30.10	81	..	..	..	6,263	8.7	30	s.	14
Kansas City	30.13	79	63	172	57	7,260	10.1	30	sw.	14
St. Joseph	30.11	82	66	147	49	6,056	8.4	29	sw.	14
St. Louis	30.13	79	66	133	44	9,394	13.0	41	sw.	14
Springfield	30.16	83	67	143	47	7,240	10.1	29	s.	15
Cairo, Ill.	30.17	78	65	..	..	6,125	8.5	32	sw.	17
Keokuk, Iowa	30.11	80	72	137	46	5,479	7.6	31	s.	14

Beginning January 1, 1928 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR NOVEMBER.

Year	Temperature				Precipitation			Number of days			
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With .01 inch or more	Clear	Partly cloudy
1888	41.6	-2.0	87	15	3.26	+0.94	....	....	11	..	..
1889	39.9	-3.7	73	8	3.43	+1.11	....	....	7	..	..
1890	46.5	+2.9	80	20	2.31	-0.01	....	....	5	..	..
1891	39.6	-4.0	82	2	3.60	+1.28	....	....	5	..	..
1892	40.1	-3.5	79	9	2.60	+0.28	....	1.0	6	11	12
1893	40.9	-2.7	79	1	1.54	-0.73	4.66	0.3	4	14	7
1894	41.0	-2.6	80	2	1.58	-0.74	2.20	0.2	4	15	9
1895	41.6	-2.0	82	2	3.37	+1.05	2.98	3.2	6	10	13
1896	42.3	-1.3	82	5	2.18	-0.14	4.00	0.2	6	11	12
1897	43.4	+0.2	82	3	2.40	+0.08	3.39	0.2	6	13	8
1898	39.9	-3.7	79	8	2.28	-0.04	2.75	2.3	6	14	8
1899	49.5	+5.9	82	16	1.90	-0.42	2.66	0.2	7	11	10
1900	43.7	+0.1	84	7	2.58	+0.26	4.55	0.2	6	15	7
1901	43.6	0.0	84	7	1.38	-0.94	1.90	0.3	4	17	6
1902	50.1	+6.5	85	18	3.62	+1.20	2.14	0.4	5	13	13
1903	40.9	-2.7	79	2	1.24	-1.08	2.44	1.1	5	13	9
1904	46.3	+2.7	83	12	0.22	-2.10	0.68	0.7	2	21	5
1905	45.8	+2.2	83	2	1.94	-0.38	2.49	0.8	6	18	6
1906	47.6	+4.0	87	5	2.60	+0.28	3.60	5.0	8	12	6
1907	47.6	+4.0	87	5	2.52	+0.20	3.00	T.	4	19	4
1908	47.6	+4.0	87	5	4.14	+1.82	4.00	0.2	8	15	7
1909	53.6	+10.0	87	11	4.43	+2.11	6.18	0.4	8	12	7
1910	42.0	-1.6	83	11	0.38	-1.94	0.70	0.1	3	15	8
1911	39.1	-4.5	93	3	2.55	+0.23	2.15	1.1	7	13	6
1912	45.9	+2.3	88	12	1.52	-0.80	2.37	0.1	3	20	5
1913	51.7	+7.4	80	11	2.73	+0.35	2.50	T.	7	10	8
1914	48.6	+4.0	89	2	0.65	-1.84	1.90	0.1	3	19	6
1915	49.5	+4.9	87	12	2.76	+0.38	2.62	0.1	5	16	7
1916	49.6	+5.9	85	3	2.49	+0.14	2.63	0.1	4	19	4
1917	46.1	+1.5	80	8	1.05	-1.46	3.26	T.	3	14	5
1918	44.9	+0.5	85	12	3.18	+0.79	4.60	1.2	6	15	4
1919	42.2	-2.2	78	2	3.62	+1.40	3.36	1.0	6	15	5
1920	40.9	-3.5	82	6	1.21	-1.09	1.89	T.	6	12	6
1921	45.6	+1.2	84	10	2.82	+0.40	4.29	0.4	5	13	7
1922	47.8	+2.9	84	15	3.82	+1.45	3.40	T.	7	16	6
1923	45.1	+0.6	79	14	2.15	-0.20	2.30	3.0	6	15	6
1924	46.7	+2.2	88	4	1.72	-0.63	1.68	0.5	4	15	8
1925	42.8	-1.7	80	2	2.99	+0.64	3.20	2.0	6	16	8
1926	39.6	-4.9	78	0	2.98	+0.63	2.25	4.2	7	11	7
1927	46.8	+2.3	89	12	3.55	+1.20	3.41	0.9	7	6	9
1928	44.6	+0.1	79	9	5.10	+2.75	6.52	0.5	10	13	4

Climatological Data for November, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.			Number of days.				Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., .01 inch or more.	Clear.			Partly cloudy.	Cloudy.
Northeast Plain																				
Brunswick	Chariton	652	48	42.9	+ 1.4	75	15	20	25	34	5.32	+3.35	2.04	1.2	11	14	0	16	sw.	O. K. Benecke
Clifton Hill	Randolph	731	28	43.4	- 0.4	71	15	16	25	45	7.21	+5.30	2.50	0.5	11	13	3	14	.....	Dr. A. J. Bradsher
Columbia	Boone	781	37	44.5	+ 1.2	70	15	19	25	34	4.68	+2.37	2.30	0.3	12	12	3	15	s.	U. S. Weather Bureau
Downing	Schuyler	876	6	42.4	.....	72	15	17	25	31	5.49	+3.86	2.55	T.	11	11	2	14	w.	James Taylor
Fayette	Howard	661	47	42.4	+ 0.1	75	15	14	26	41	6.52	+4.52	2.50	0.3	10	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	44.4	- 0.1	69	12†	17	26	34	2.97	+0.72	1.14	0.3	13	9	10	11	.....	Chamber of Commerce
Gorin	Scottland	700	40	.....	.....	70	15	21	25	29	5.86	+3.90	3.11	1.0	10	13	3	14	nw.	J. W. Pulliam
Hannibal	Marion	534	35	44.2	+ 2.1	70	15	21	25	29	3.82	+1.87	1.85	T.	11	11	5	14	sw.	U. S. Weather Bureau
Jefferson City	Cole	557	39	45.4	+ 1.3	70	15	18	26	37	2.32	+0.05	0.95	0	8	14	15	1	n.	Mrs. Frank Klegel
Kirksville	Adair	969	38	42.4	+ 1.9	71	15	17	25	33	8.22	+6.46	3.25	0.5	12	12	3	15	nw.	Prof. J. S. Stokes
Louisiana	Pike	469	33	45.0	+ 0.8	70	15	18	26	34	3.50	+1.22	1.30	T.	10	13	6	11	w.	Stark Bros. Nurseries
Macon	Macon	875	28	41.9	- 1.5	73	15	12	25	30	8.15	+6.22	4.50	0.3	14	9	6	15	se.	W. C. Brown
Mexico	Andrain	800	38	43.2	+ 0.2	72	15	19	26	34	3.80	+1.48	1.45	0.8	13	14	1	15	w.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	70	15	21	25	30	6.44	.....	2.48	0	11	11	7	12	n.	J. S. Conway
St. Charles	St. Charles	456	39	45.4	- 0.1	67	6†	19	26	33	0.74	-1.80	0.22	T.	4	11	4	15	nw.	L. C. Sager
St. Louis (1)	St. Louis City	568	53	46.0	+ 0.6	70	11	23	25	32	1.90	-0.93	0.79	T.	12	12	3	15	sw.	U. S. Weather Bureau
St. Louis (2)	do.	578	15	45.2	- 1.3	69	11	23	25†	30	1.95	-0.36	0.70	T.	12	13	1	16	w.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	70	15	21	25	30	5.43	+3.35	2.48	0	13	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	43.2	- 0.6	72	15	15	20	40	7.20	+5.27	2.85	T.	9	12	5	13	s.	Frank Hall
Unionville	Putnam	1,062	34	41.8	+ 1.6	72	15	17	25	33	6.48	+4.66	3.80	0.5	11	13	5	12	sw.	Geo. W. Davis
Warrenton	Warren	816	45	45.6	+ 2.7	70	11	19	25	31	2.15	-0.44	0.67	0.5	10	13	2	15	sw.	Prof. A. W. Ebeling
Keokuk, Iowa	Lee, Ia.	614	55	42.9	+ 1.8	69	15	20	25	26	5.18	+3.24	3.18	0.3	10	10	4	16	s.	U. S. Weather Bureau
Section means and extremes				43.8	+ 0.7	75	15	12	25	45	4.79	+2.59	4.50	0.3	11	12	4	14	sw.	
Southeast Lowlands																				
Campbell	Dunklin	314	2	47.4	.....	71	15	16	26	39	3.20	.....	1.40	0	9	13	3	14	n.	Jeff. King
Caruthersville	Pemiscot	265	31	51.0	+ 1.1	74	15	23	26	29	3.32	-0.53	1.20	0	7	15	3	12	nw.	Sam Smith
Doniphan	Ripley	314	23	46.1	- 1.5	68	17	15	26	42	7.71	+4.59	2.00	0	8	14	6	10	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	45.9	- 0.8	67	16	15	26	42	6.45	+3.32	2.26	0	9	12	2	16	n.	John G. Putz
Marble Hill	Bollinger	470	32	46.4	+ 2.0	68	6	14	26	38	7.04	+3.87	1.80	0	12	15	1	14	n.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	70	15	16	26	44	4.67	+1.02	1.82	0	11	14	1	15	sw.	John A. Spence
Poplar Bluff	Butler	329	23	48.7	+ 1.3	72	6	16	26	44	6.80	+3.54	2.16	0	11	16	5	9	w.	J. H. Wolpers
St. Leon	Scott	318	22	48.0 ¹	+ 0.6	72	15	19	26	33	.....	1.82	0	.....	11†	2	8†	.....	.....	Glen R. Fisher
Cairo, Ill.	Alexander, Ill.	358	52	47.7	+ 0.4	70	15	25	26	28	3.30	-0.38	1.90	0	12	9	6	15	s.	U. S. Weather Bureau
Section means and extremes				47.6	+ 0.4	74	15	14	26	44	5.31	+2.20	2.26	0	10	13	4	13	n.	
Ozark Plateau																				
Arcadia	Iron	926	46	43.0	- 1.0	71	7	13	26	37	4.45	+0.83	1.08	T.	9	17	1	12	sw.	Arcadia College
Aurora	Lawrence	1,370	37	46.3	+ 0.3	70	14	19	26	36	3.22	+0.43	1.07	T.	6	11	4	15	sw.	W. T. Troughton
Birchtree (near)	Shannon	1,000	32	46.0	- 0.5	71	7†	15	26	43	4.85	+1.96	1.40	0	7	15	1	14	n.	V. H. Kirkendall
Bolivar	Polk	1,071	33	.....	.....	70	15	18	26	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southwest Baptist College
Dean H.	McDonald	1,000	30	52.0 ^b	+ 2.3	78	18	12	26	41	3.54	+0.50	1.71	0.4	5	17 ^b	8 ^b	3 ^b	.....	H. E. Deau
Eldon	Miller	931	31	41.8 ^b	- 3.4	68	15	17	26†	36	4.16	+1.95	.....	T.	8	10	4	16	n.	E. H. Shepherd
Farmington	St. Francois	918	16	44.6	+ 0.3	71	7	14	26	39	3.71	-0.25	1.35	T.	11	11	6	13	w.	Robert Forsyth
Goodland	Iron	1,000	33	44.8	+ 0.2	72	7	10	26	47	3.42	+0.53	1.26	0	9	14	3	13	n.	F. M. Adams
Greenville	Wayne	381	5	46.1 ^d	.....	70	7	12	26	49	6.00	.....	1.65	0	10	16	1	13	nw.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	70	15	21	26	41	1.81	.....	1.41	T.	2	13	8	9	w.	A. W. Madison
Koshkonong	Oregon	958	26	46.8	- 2.6	68	7†	21	26	41	5.15	+2.13	1.40	0	9	10	6	14	sw.	R. M. Hitt
Lebanon	Laclede	1,265	39	42.0	- 4.0	69	6†	14	26	45	3.22	+0.63	0.67	T.	11	16	1	13	n.	Mrs. Lou Mulecare
Lockwood	Dade	1,078	21	46.4	- 1.3	71	13	18	26	36	2.75	+0.54	0.72	0.2	7	13	2	15	se.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	43.4	- 3.2	71	7	16	26	40	4.28	+1.85	1.33	T.	10	14	3	13	se.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	46.8	- 0.4	74	14	9	26	41	4.27	+1.21	2.00	T.	9	15	2	13	sw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	43.8	- 1.1	67	7†	16	26	34	2.32	+0.01	0.75	0.3	8	5	11	14	w.	F. H. Lane
Salem (near)	Dent	1,173	23	44.9	- 1.9	69	11	13	26	37	2.92	+0.61	0.85	0.4	10	13	3	14	n.	A. C. Leach
Seligman	Barry	1,542	25	47.6 ^a	+ 0.4	76	6	20	26	35	5.01	+2.65	1.67	T.	6	16 ^a	0 ^a	13	sw.	Floyd E. Pawver
Seymour (near)	Webster	1,642	21	44.4	- 1.7	68	6†	15	26	37	4.31	+1.98	1.43	T.	6	15	3	12	nw.	Ira H. Hailey
Springfield	Greene	1,324	39	45.4	- 0.3	68	14	22	25	30	2.08	-0.56	0.55	1.6	9	14	2	14	s.	U. S. Weather Bureau
Section means and extremes				45.3	- 1.1	78	18	9	26	49	3.76	+1.00	2.00	0.2	8	13	4	13	sw.	
Southwest Plain																				
Appleton City	St. Clair	853	33	45.1	- 1.0	75	15	20	25†	33	5.28	+3.15	2.95	T.	8	11	9	10	sw.	W. G. Bigelow
Centerville	Johnson	872	40	45.0 ^b	+ 0.1	75	15	19	25	31	10.88	+9.10	6.52	T.	5	8 ^b	6 ^b	14 ^b	sw.	E. A. Markey
Clinton	Henry	765	34	46.2 ^a	- 1.1	74	15	20	26	28	4.78	+2.90	2.30	0.1	6	11	8	14	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	42.5	+ 0.1	75	15	16	25	40	10.84	+8.89	6.30	0.5	13	9	5	16	nw.	John H. Patterson
Lamar	Barton	980	40	44.5	- 2.1	72	14†	18	26	40	2.97	+0.73	0.95	T.	11	12	3	15	sw.	Jesse A. Mann
Lamotte	Pettis	867	26	44.6	+ 0.2	77	15	18	26	36	6.85	+4.95	3.80	T.	11	8	13	9	sw.	J. E. Wheeler
Marshall	Saline	779	38	45.5	- 0.1	79	15	18	26	34	8.78	+6.70	4.60	1.2	11	14	2	14	nw.	Dr. W. H. Black
Nevada†	Vernon	862	34	45.6	+ 1.2	73	15	19	26	36	2.36	+0.48	1.00	T.	5	13	3	14	nw.	George A. Kaupp
Warsaw	Benton	687	27	47.5	- 0.0	74	15	17	26	42	5.03	+2.62	3.00	0.1	7	13	5	12	w.	Everett Martin
Section means and extremes				45.1	- 0.5	79	15	16	25	42	6.93	+4.88	6.52	0.2	8	11	6	13	sw.	
Northwest Plateau																				
Bethany	Harrison	916	35	42.1	- 0.8	70	15	15	25	32	6.75	+4.98	2.06							

Daily Precipitation for November, 1928

Stations.	Drainage-basins.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		..	
Northeast Plain																																		
Boonville||	Missouri.....	.35	.89	.02					.04							.27	1.87	2.40	.07	.08									.02		.01	.17	6.19	
Brunswick||	Grand.....	.35	.95	.12					.04		.07					.20	1.30	2.04	.06	.06									.07		.12		5.32	
Clifton Hill	Chariton.....	1.10	.55	.05				.03		.12					.18	.20	2.50	2.50	.05	.05									.01	.12	.24		7.21	
Columbi***	Missouri.....	.69	.24	.03				.07		.01					.52	.01	2.27	.53	T.	.06									.01		T.		4.63	
Downing	Mississippi.....	.62	.68	.08				.05		.10					.20		.80	2.55		.10									T.	.05	.26		5.49	
Fayette||	Missouri.....	.95	.06					.06		.06					.35	2.16	2.50	.20		.10									.03	.15			6.52	
Fulton	do.....	.32	.21					.09	.03	.05					.31	1.14	.38		.01	.05									.04	.09	.22		2.97	
Garin	Mississippi.....	.57	.53					.06	.06						.07		1.19	3.11		.07									.03	.17			5.86	
Hannibal***	do.....	.70	.25	.02				.21	.05						.24		1.77	.38	T.	.03	T.								.01	T.	.16		3.82	
Hermann||	Missouri.....	.20	.30	.03				.05		.03					.18	.54	.23	.11	.03	.05											.15		1.90	
Jefferson City||	do.....		.15					.05							.35	.95	.45			.12										.20	.05		2.32	
Kirkville	Mississippi.....	1.50	.82	.06				.07	.08						.12		1.85	3.25		.10									.05	.12	.20		8.22	
Louisiana	do.....	.40	.20				.25	.25	.10						.30		1.30	.40		.10										.20			3.50	
Macon ||	Chariton.....	.44	1.05	.21	.02			T.	.04	.20	.08			.13	T.	1.09	4.50	.15	.06										.03		.15		8.15	
Mexico ||	Mississippi.....	.30	.20	.03				.10	.06		.10				.36	1.45	.78	.05	.09										T.	.03		.25		3.80
Milan||	Grand.....	.40	1.15	.25				.20	.30							.60	4.00	.20						.30						.55			7.95	
Monroe City	Mississippi.....	.89	.26	.04				.12	.16		.16				.57		2.48	1.62		.09									.02	.19			6.44	
Pacific||	Meramec.....	.30	.43	.03	.18				T.		T.				.07	.23	.19	.41		T.									.05	.22	.35		2.24	
St. Charles	Missouri.....	T.		.19				T.							.15		.18	T.		T.									T.	T.	.22		0.74	
St. Louis (1)**	Mississippi.....	.78	.01	.18				.01	T.	.06					.05	.03	.04	.51	.01	T.		T.							.02	T.	.20	.01	1.90	
St. Louis (2)*	do.....	.70	T.	.17				.07		.07					.11	.13	.08	.47		.01									.01	.01	.18		1.95	
Shelbina ||	do.....	.30	.84	.24				.05	.05	.02	.20				.19	.85	2.48	.09		.05										.02	.18	.20		5.43
Stellenville	do.....	.80	.40	T.				.05	.05		.05				.30		1.85	2.85	T.	.85									T.	.05			7.20	
Union||	Meramec.....	.40	.20	.01	.10			.02		.04					.06	.06	.33	.17	.06	.02										.02	.18	.20		1.87
Unionville	Chariton.....	.95	.75	.15				T.	T.	.15					.18		1.50	2.30	.10	.05								T.	T.	.10	.25		6.48	
Warrenton	Mississippi.....	.47	.15	T.	T.			.03	.06						.14		.67	.39	T.	.04									T.	T.	.18	.02		2.15
Keokuk, Ia.***	do.....	.45	.49	T.				.05	.01						.39		2.57	1.01	T.	.03	T.								T.	T.	.14	T.		5.18
Southeast Lowlands																																		
Campbell||	St. Francis.....	.80													.06		.16	.32		.06									.11	.12	1.40	.17	3.20	
Cape Girardeau||	Mississippi.....	.06	1.41	.03							.01				.04		.06	2.25	.03	.44	.09	.02								.08	.22	1.62		6.32
Caruthersville ||	do.....		.85	.05											.04		.53			.12										.53	1.20		3.32	
Dexter||	St. Francis.....		.94					T.			.04					.06	1.15	.02	.59											.16	1.14	1.86		5.12
Doniphan	Black.....	2.00		.27						T.					T.	.75	1.50	.62											.46	.73	1.38		7.71	
Jackson	Mississippi.....	.70	1.09													.45	1.17	.09		.06									.03	.09	2.26		6.45	
Marble Hill	Mississippi.....	1.10	.90	.10											.12	.40	1.12	.60	.10										.20	.30	1.80	.30	7.04	
Morehouse	do.....	.45	.66							.04					T.	.06	.70	.43	.40	.15	.04								.02	.12	1.82	.32	4.67	
New Madrid||	do.....	.08	.90	.04	.04					.04						.10	.01	.53												.16	1.80	2.20		6.28
Poplar Bluff	Black.....		1.41	.92				T.		.04						.05	2.16	.32	.14	.03	.04									.16	.83	1.01		6.80
Sikeston||	Mississippi.....														.05					.05											1.82	.32		
Cairo, Ill.***	do.....	.37	.23	T.				T.		.05					.04	.09	.01	.31	.12	.02									.04	.07	1.90		3.30	
Ozark Plateau																																		
Arcadia ||	St. Francis.....	.18	.95	T.	T.			T.							.09	.98	.40	.36	T.											.05	.36	1.08		4.45
Aurora	Neosho.....	.46	T.	T.											.32	1.07	T.	.44		.09											.84			3.22
Birchtree (near)	Black.....	1.01	.10												.42	.95	.22	.75													1.40			4.85
Bolivar	Osage.....		.01	.04											.41	.02	.14	.46	T.	.04											.01	.13	T.	1.87
Caplinger Mills	Osage.....	.58	T.	T.			.03			T.					.65	1.71					.23										.40		.36	4.16
Deau	Neosho.....	.55	T.	T.											.48	* * *	* * *	* * *	* * *												.40			3.54
Eldon||	Missouri.....	.49						.30							.05	.22	.30	.62	T.											.02	.03	1.35		3.71
Farmington	St. Francis.....	.93	.13	.03						.03					.05	.22	.30	.62	T.												.03	1.35		3.62
Fredericktown||	do.....		.86	.10											.35	.10	.86	.26													.05	1.75		5.59
Galena||	White.....	.74	.06	.05											.35	.10	.86	.26													.05	1.26		3.42
Goodland	Black.....														.10	.50	.80	.71		.06									.05	.18	1.65		6.00	
Greenville	St. Francis.....	1.50	.45					T.		T.					.10	.50	.80	.71		.06									.05	.18	1.65		6.00	
Hailey	White.....			T.											.10	.50	.80	.71		.06									.05	.18	1.65		6.00	
Koshkoning	Black.....	1.32	.15												.25	1.00	.26	.56										.12	.09	1.40		5.15		
Lebanon||	Osage.....	.50	.08	.08	.11										.65	.30		.60	.10	.08	.05										.67	T.		3.22
Lockwood	do.....	.45	.01	.05											.72	.50		.50		.12											.38			2.75
Mountain Grove||	White.....	.51	.41	.05																														

^{a, b, c, etc.} indicate respectively 1, 2, 3, etc., days missing from the record. §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
WBO, St. Louis, 12-14-28-925.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., DECEMBER, 1928. No. 12.

GENERAL SUMMARY.

December, 1928, was mainly a mild month in all Missouri, with a small excess of precipitation in the northeastern, and southwestern plains, and over most of the Ozark Plateau; and a small deficiency in the southeastern lowlands and somewhat larger deficiency over the northwestern plateau. Deficiencies were nowhere serious, and, on the other hand, were beneficial following the large excess of November.

The month was free from sudden and marked temperature changes. A relatively brief cold snap prevailed the first week, when zero was recorded at a few of the more northern stations. There was a warm spell about the middle of the month, and another the last week, the 28th being an outstanding warm day for winter. The maximum temperature record, at a few stations having relatively short records, was broken on that date. On the last day of the year the first intense cold was overspreading the northwestern part of the State.

For Missouri, as a whole, this was the warmest December since 1923. The extremes of temperature, 0° on the 5th, and 81° on the 28th, were well within those of other years, although the maximum of the current month has never been exceeded by more than 3° in 40 years. The zero cold is relatively mild when compared with the minima of some other Decembers.

The precipitation was well distributed as to time. There was one general rainy day during the first decade, three during the second decade, and two near the end of the month. Such an arrangement permitted much fine, open weather for nearly all outdoor occupations. The snowfall was less than normal. The ground north of the Missouri River was appreciably covered from one to four days, but the snow melted about as fast as it fell south of the river.

On the whole, the month's weather was favorable for outdoor work. Fall sown grains made fine growth, being well rooted. Live stock lived in the open much of the time pasturing on stalk fields, resulting in the saving of much forage; and there was a large saving to the householder because of a minimum requirement for fuel.

Correction: The November floods were not as destructive to main State highways as first indicated by press news reports, in our November publication. The Missouri State Highways Department at Jefferson City, stated, following a careful survey, that the damage would not exceed \$60,000.

TEMPERATURE.

The monthly mean for the State, 67 stations reporting, was 36.2°, or 2.3° warmer than the normal. Plus departures were nearly the same in all divisions. The coldest weather occurred during the first 7 or 8 days. Outstanding warm spells prevailed from the 11th to the 15th, and during the last seven days of the month. The highest temperature was 81°, at Birehtree and Koshkonong on the 28th, and the lowest was 0°, at Kirks- and Downing on the 5th. The average number of days with 32° or lower was 23.

PRECIPITATION.

The average for the State, 98 stations reporting, was 2.24 inches, or about 0.21 inch more than the 56 years' average. The geographic distribution was fairly good. The northwestern section received about 0.50 less than the normal, the southwestern plain about 0.53 more than the normal while the remainder of the State got practically normal. The precipitation was well spaced as to time. It was general on the 4th, 13th to the 17th, and on the last two days of the month. This left much fine weather between the wet days. The heaviest monthly amount was 5.04 inches, at Morehouse, New Madrid County. The next heaviest was 4.63 inches at Lockwood, and 3.10 inches

at Lamar. The greatest amount in any 24 consecutive hours was 3.10 inches at Lockwood. Dade County on the 16th.

The monthly snowfall south and east of the Osage River was inappreciable as a rule. Over the remainder of the State it ranged from 1 to 4 inches; in Adair, Macon, Randolph, and Charitan Counties it was as much as 5 to 7 inches. However, all melted within a few days.

MISCELLANEOUS PHENOMENA.

Fogs, dense.—10th, 13th, 14th, 15th, 16th, 24th, and 25th.

Halos, lunar.—2d, 3d, 21st, 25th, 29th, and 30th.

Halos, solar.—1st 3d, 6th, 18th, 21st, and 28th.

Sleet without damage.—13th, 14th, 16th, 17th, and 31st.

Thunderstorms.—14th, and 16th.

PRESSURE, HUMIDITY, SUNSHINE, AND WIND DATA.

Stations	Mean barometric pressure (Sea-level)	Mean relative humidity		Sunshine		Wind				
		7 a. m.	7 p. m.	Total hours	Percentage of possible	Total move- ment miles	Average hour- ly velocity	Max. velocity		
								Miles per hour	Direction	Date
Columbia.....	30.12	82	70	170	58	5,369	7.2	23	w.	2
Hannibal.....	30.13	82	..	..	..	5,574	7.5	31	sw.	2
Kansas City.....	30.13	78	66	161	55	6,989	9.4	32	w.	2
St. Joseph.....	30.12	84	70	131	45	5,635	7.6	23	nw.	3
St. Louis.....	30.14	77	66	166	57	8,030	10.8	36	sw.	26
Springfield.....	30.15	83	65	160	54	7,004	9.4	32	nw.	26
Cairo, Ill.....	30.16	82	66	..	..	5,497	7.4	29	s.	26
Keokuk, Iowa.....	30.12	82	75	151	52	4,948	6.7	34	w.	3

Beginning January 1, 1923 wind velocities are by 3-cup anemometers.

COMPARATIVE DATA FOR DECEMBER.

Year	Temperature				Precipitation				Number of days			
	Mean	Departure	Highest	Lowest	Mean	Departure	Greatest in 24 hours	Total snowfall, unmelted	With .01 inch or more	Clear	Partly cloudy	Cloudy
1888.....	35.9	+1.7	70	0	2.29	+0.24	....	....	6	..	..	..
1889.....	46.8	+12.6	78	-2	0.96	-1.09	....	....	5	..	..	..
1890.....	36.0	+1.8	76	-3	1.03	-1.02	....	....	3	..	..	..
1891.....	39.8	+5.6	72	-1	1.90	-0.15	....	....	6	..	..	..
1892.....	29.4	-4.8	75	-22	2.38	+0.33	3.08	4.8	6	8	..	16
1893.....	35.2	+1.0	76	-7	0.95	-1.10	2.95	2.7	5	11	11	9
1894.....	36.7	+2.5	75	-7	2.13	+0.08	3.01	1.3	5	14	8	9
1895.....	34.3	+0.1	69	-8	6.13	+4.08	6.95	3.4	8	9	8	14
1896.....	38.6	+4.4	79	-5	0.93	-1.12	2.25	T.	3	13	8	10
1897.....	29.3	-4.9	74	-14	2.80	+0.75	2.70	6.3	7	8	8	15
1898.....	28.7	-5.5	74	-20	1.69	-0.36	2.50	5.1	5	17	6	8
1899.....	30.4	-3.8	72	-13	2.11	+0.06	1.70	6.6	9	12	9	10
1900.....	35.6	+1.4	68	-3	0.69	-1.36	1.08	0.6	4	14	8	9
1901.....	28.5	-5.7	71	-29	2.93	+0.88	4.43	6.9	8	11	7	13
1902.....	30.7	-3.5	68	-7	2.91	+0.06	2.50	3.1	8	10	4	17
1903.....	30.2	-4.0	65	-11	1.51	-0.54	1.80	2.3	5	16	7	8
1904.....	32.9	-1.3	75	-10	1.50	-0.55	1.55	6.0	5	16	7	8
1905.....	33.3	-0.9	66	-2	1.45	-0.60	2.24	1.7	4	18	6	7
1906.....	36.1	+1.9	73	0	2.27	+0.22	2.85	0.6	8	8	6	17
1907.....	37.7	+3.5	76	-3	1.84	-0.21	1.78	3.7	7	11	7	13
1908.....	33.4	+4.2	80	-4	0.55	-1.20	1.35	T.	3	16	7	8
1909.....	24.9	-9.3	76	-17	2.86	+0.81	2.50	7.7	8	12	6	13
1910.....	31.2	-3.0	67	-5	1.25	-0.80	2.85	2.4	4	16	5	10
1911.....	36.7	+2.5	74	-11	2.80	+0.70	2.90	5.1	7	13	6	12
1912.....	36.5	+2.3	72	-2	0.59	-1.46	0.91	0.6	3	19	5	7
1913.....	38.3	+4.9	74	-3	2.27	+0.19	2.25	6.6	7	9	4	18
1914.....	26.8	-7.1	68	-18	2.48	+0.31	2.80	6.6	9	7	5	19
1915.....	34.7	+1.3	84	-13	2.77	+0.55	3.20	7.8	6	12	6	13
1916.....	31.3	-2.3	82	-29	1.85	-0.29	3.40	4.4	6	15	6	10
1917.....	25.5	-8.7	82	-23	0.74	-1.40	2.51	7.3	5	11	7	13
1918.....	10.0	+6.6	83	-12	3.21	+1.14	5.50	7.8	7	13	6	12
1919.....	28.5	-4.5	74	-22	0.69	-1.50	2.65	0.7	3	12	4	15
1920.....	35.6	+2.6	77	-10	1.93	-0.22	2.50	2.3	5	13	7	11
1921.....	36.9	+3.8	74	-8	1.86	-0.23	1.91	1.9	6	13	7	11
1922.....	36.3	+2.9	75	-6	2.11	-0.11	3.04	0.2	6	15	6	10
1923.....	41.0	+7.1	82	-4	3.06	+1.03	2.23	0.8	8	11	6	12
1924.....	27.7	-6.2	80	-28	3.43	+1.40	4.20	4.6	7	13	6	14
1925.....	31.6	-2.3	80	-10	1.45	-0.58	2.81	4.8	4	13	7	11
1926.....	32.6	-1.3	75	-12	2.18	+0.15	2.00	2.4	6	11	5	15
1927.....	29.9	-4.0	74	-11	2.68	+0.65	5.65	2.9	6	15	5	11
1928.....	36.2	+2.3	81	0	2.24	+0.21	3.10	1.4	5	14	6	11

Climatological Data for December, 1928

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahr.						Precipitation, in inches.				Number of days.				Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	With precip., all inch or more.	Clear.	Partly cloudy.			Cloudy.
Northeast Plain																				
Brunswick	Chariton	652	48	34.0	+ 3.4	55	131	10	5	32	2.08	+0.46	0.83	7.0	6	14	4	13	se.	O. K. Benzke
Clifton Hill	Randolph	731	28	34.2	+ 3.1	58	28	4	5	30	2.56	+1.16	0.91	5.1	9	11	9	11	.....	Dr. A. J. Bradsher
Columbia	Boone	784	37	36.2	+ 3.0	66	28	14	5	29	2.04	+0.03	1.07	2.1	8	10	9	12	sw.	U. S. Weather Bureau
Downing	Schuyler	876	6	32.4	.....	54	28	0	5	30	1.77	+0.31	0.90	4.0	6	14	6	11	s.	James Taylor
Fayette	Howard	661	47	33.9	+ 2.7	64	28	7	5	36	1.98	+0.35	0.90	1.0	5	.....	.....	.....	.....	J. D. Settle
Fulton	Callaway	818	39	35.8	+ 2.1	70	29	11	21	40	1.81	-0.11	0.58	0.6	9	8	16	7	.....	Chamber of Commerce
Garin	Scotland	700	40	.....	.....	.....	.....	.....	.....	.....	1.71	+0.02	0.91	2.5	5	15	6	10	sw.	J. W. Pullham
Hannibal	Marion	534	35	34.8	+ 3.3	56	28	11	5	29	1.92	+0.27	1.33	1.9	7	13	6	12	n.	U. S. Weather Bureau
Jefferson City	Cole	557	39	38.2	+ 5.4	76	28	11	5	43	1.84	-0.01	1.10	0.5	4	14	10	7	sw.	Mrs. Frank Kliegel
Kirksville	Adair	969	38	32.2	+ 2.6	51	2	0	5	58	2.42	+0.78	1.29	5.8	5	13	1	17	sw.	Prof. J. S. Stokes
Louisiana	Pike	469	33	35.4 ^a	+ 3.9	60	28	11	8	35	1.79	+0.10	0.90	1.0	2	14 ^a	8 ^a	5 ^a	.....	Stark Bros. Nurseries
Macon	Macon	875	28	32.8	+ 2.4	54	28	4	5	32	2.18	+0.78	1.20	5.0	5	11	11	9	w.	M. C. Brown
Mexico	Audrain	800	38	34.8	+ 2.8	63	28	10	5	35	2.05	+0.05	1.14	3.0	5	19	0	12	w.	Mrs. Abbie Snoddy
Monroe City	Monroe	748	6	.....	.....	.....	.....	.....	.....	.....	2.30	.....	1.22	1.8	6	9	11	11	se.	J. S. Conway
St. Charles	St. Charles	456	39	38.1	+ 3.2	68	28	12	5 ^a	33	1.87	0.00	0.90	T.	5	12	6	13	s.	L. C. Seeger
St. Louis (1)	St. Louis City	568	53	38.6	+ 3.7	75	28	16	5	35	2.22	+0.01	0.97	T.	8	14	6	11	s.	U. S. Weather Bureau
St. Louis (2)	.....do.....	578	15	37.8	+ 3.5	75	28	16	5 ^a	35	2.02	-0.08	0.77	0.5	8	13	7	11	se.	St. Louis University
Shelbina	Shelby	779	34	.....	.....	.....	.....	.....	.....	.....	1.90	+0.29	1.01	4.0	5	.....	.....	.....	.....	J. C. Jewett
Steffenville	Lewis	650	29	33.6	+ 3.0	54	28	1	5	32	2.18	+0.62	0.98	2.5	4	11	8	12	e.	Frank Hall
Unionville	Putnam	1,062	34	32.0	+ 4.6	50	10 ^a	3	5	32	0.85	-0.79	0.55	3.0	2	12	5	14	sw.	Geo. W. Davis
Warrenton	Warren	816	45	38.0	+ 6.0	73	28	10	5	39	1.84	-0.29	0.70	4.0	7	11	10	10	sw.	Prof. A. W. Fleming
Keokuk, Iowa	Lee, Ia.	614	55	32.0	+ 3.4	52	26	5	5	25	1.85	+0.40	0.83	2.3	6	12	5	11	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	35.0	+ 3.4	76	28	0	5	48	1.96	+0.21	1.33	2.6	6	13	7	11	sw.	.....
Southeast Lowlands																				
Campbell	Dunklin	314	2	39.6	.....	72	27 ^a	15	8	38	3.71	.....	2.10	0	6	13	5	13	n.	Jeff King
Caruthersville	Pemiscot	265	31	43.6	+ 3.6	71	28	22	8	33	4.61	+0.17	1.98	0	6	15	4	12	n.	Sam Smith
Doniphan	Ripley	344	23	38.8	+ 1.4	73	29	15	9	47	3.00	-0.33	1.15	0	7	17	8	6	sw.	W. W. Martin
Jackson	Cape Girardeau	428	36	37.5	+ 0.9	66	28	15	6 ^a	41	3.48	+0.28	1.10	0	7	14	2	15	s.	John G. Fritz
Marble Hill	Bollinger	470	32	37.8	+ 1.6	67	28	14	6	39	4.18	+0.85	1.12	0	7	11	6	11	n.	R. A. DeWitt
Morehouse	New Madrid	289	26	.....	.....	.....	.....	.....	.....	.....	5.04	+1.03	1.83	0	7	17	4	10	nw.	John A. Spence
Poplar Bluff	Butler	379	23	38.5	+ 1.7	70	28	14	9	43	3.00	-1.18	1.06	0	6	22	1	8	w.	J. H. Wolfers
Sikeston	Scott	318	22	40.8	+ 3.3	71	28	20	6 ^a	38	3.28	-0.73	1.78	0	4	16	6	9	sw.	Glen R. Fisher
Quiro, Ill.	Alexander, Ill.	358	52	40.6	+ 2.8	67	28	21	8	30	3.26	-0.11	1.51	T.	8	14	7	10	s.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	39.6	+ 2.2	73	29	14	6 ^a	47	3.73	-0.01	2.10	0	6	16	5	10	n.	.....
Ozark Plateau																				
Areadia	Iron	926	46	36.1	+ 1.8	70	28	14	5 ^a	42	2.44	-0.54	0.77	T.	6	22	9	0	e.	Areedia College
Aurora	Lawrence	1,370	37	39.6	+ 4.5	76	28	16	5 ^a	38	2.27	-0.37	0.90	T.	4	13	10	8	sw.	W. T. Treighton
Birehtree (near)	Shannon	1,000	32	38.6	+ 2.8	81	28	14	8	52	2.63	+0.06	0.90	0	5	19	2	10	sw.	V. H. Kirkendall
Bolivar	Polk	1,071	83	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southwest Baptist College
Dean H.	McDonald	1,000	30	38.7	+ 1.3	76	28	12	8	45	1.48	-0.64	0.90	0	4	19	5	7	sw.	H. E. Dean
Eldon	Miller	931	31	36.6	+ 2.3	63	2	12	5 ^a	43	2.04	-0.12	1.05	T.	4	16	7	8	s.	E. H. Shepherd
Farmington	St. Francois	918	16	38.1	+ 1.1	73	28	12	5	36	2.84	+0.13	0.85	T.	7	14	9	8	sw.	Robert Forsyth
Goodland	Iron	1,000	33	37.3	+ 2.9	79	28	11	6	59	2.33	-0.15	0.75	0	6	15	4	12	n.	F. M. Adams
Greenville	Wayne	381	5	36.0 ^a	.....	70	28	11	9	49	3.54	.....	0.86	0	6	20	1	10	nw.	Wm. P. Owens
Hailey	Barry	1,350	2	.....	.....	.....	.....	.....	.....	.....	1.03	.....	1.03	0	1	12	8	11	sw.	A. W. Madison
Koshkonong	Oregon	958	26	40.4	+ 2.8	81	28	16	8	42	3.83	+0.67	1.35	0	6	16	4	11	sw.	R. M. Hitt
Lebanon	Laclede	1,265	39	35.8	+ 0.8	78	28	9	5 ^a	49	2.81	+0.21	1.80	T.	6	20	2	9	n.	Mrs. Lou Mulcare
Lockwood	Dade	1,078	21	39.7	+ 4.2	74	28	13	5	37	4.61	+2.69	3.10	1.0	5	17	5	9	nw.	C. S. Crow
Mountain Grove (near)	Wright	1,463	26	36.6	+ 2.3	66	28	12	8	36	2.39	+0.16	0.65	T.	7	20	3	8	nw.	Mo. Fruit Exp. Sta.
Neosho	Newton	1,011	39	39.4	+ 2.7	75	28	11	8	40	1.99	-0.55	0.98	T.	4	20	3	8	nw.	U. S. Fisheries Sta.
Rolla	Phelps	1,099	27	36.8	+ 3.2	79	28	12	8	50	1.80	-0.27	0.65	T.	5	4	17	10	w.	F. H. Lane
Salem (near)	Dent	1,173	23	37.4	+ 2.2	79	28	11	8	42	1.70	-0.31	0.71	T.	6	15	8	8	nw.	A. C. Leach
Seligman	Barry	1,542	25	39.2	+ 2.6	66	28	15	8	43	2.88	+0.31	0.90	1.0	7	13	10	8	sw.	Floyd E. Fawver
Seymour (near)	Webster	1,642	21	38.2	+ 3.8	77	28	13	5 ^a	40	3.48	+1.43	1.14	T.	5	15	4	12	sw.	Ira H. Hailey
Springfield	Greene	1,324	39	38.0	+ 1.8	75	28	15	5	33	2.70	+0.03	1.68	0.6	7	15	5	11	nw.	U. S. Weather Bureau
Section means and extremes	.....	.....	.....	37.9	+ 2.5	81	28	9	5 ^a	59	2.57	+0.16	3.10	0.1	5	16	6	9	sw.	.....
Southwest Plain																				
Appleton City	St. Clair	853	33	37.8	+ 3.5	66	28	13	5	31	2.55	+0.91	1.24	1.0	5	8	15	8	sw.	W. G. Bigelow
Centerville	Johnson	872	40	35.0 ^a	+ 1.6	72	28	.....	.....	42	1.95	+0.15	.....	4.0	.....	6 ^a	9 ^a	6 ^a	sw.	E. A. Markey
Clinton	Henry	765	34	39.3 ^b	+ 4.9	66	28	16	5	36	2.88	+1.15	1.75	1.0	3	13 ^b	5 ^b	11 ^b	sw.	A. E. Derwent, M. D.
Harrisonville	Cass	904	50	31.8	+ 3.6	64	28	10	5	41	1.72	-0.06	0.80	1.5	6	7	4	20	s.	John H. Patterson
Lamar	Barton	980	40	37.6	+ 2.4	74	28	15	8 ^a	46	3.10	+1.15	1.95	T.	4	16	5	10	sw.	Jesse A. Muir
Lamotte	Pettis	867	26	36.8	+ 2.6	62	28	12	5	32	2.49	+0.83	0.86	4.0	6	9	13	9	sw.	J. E. Wheeler
Marshall	Saline	779	38	36.8	+ 5.2	62	28	9	5	29	1.92	+0.26	0.70	3.5	6	16	1	14	sw.	Dr. W. H. Black
Nevada	Vernon	862	34	39.0	+ 5.1	67	28	14	5 ^a	27	2.18	+0.32	1.00	3.0	4	16	7	8	s.	Geo. A. Knapp
Warsaw	Benton	687	27	40.8	+ 6.0	75	28	11	5	38	2.86	+0.54	0.80	1.0	6	11	8	12	w.	Everett Martin
Section means and extremes	.....	.....	.....	37.5	+ 3.9	75	28	9	5	46	2.41	+0.58	1.95	2.1	4	12	8	11	sw.	.....
Northwest Plateau																				
Bethany	Harrison	916	35	32.0 ^a	+ 1.7	50	10 ^a	6	5	32	0.66	-0.69	0.40	3.0	3	9 ^a	4 ^a			

Daily Precipitation for December, 1928

Stations.	Drainage-basins.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Northeast Plain																																			
Boonville ¹	Missouri				.02	.02							.63	.15			1.15																1.97		
Brunswick ¹	Grand				.20								.55	.12	.05		.33	.83															2.08		
Clifton Hill	Chariton				.32								.91	.02	T.		.65	.35	.14	T.	T.							.12	.02			.03	2.56		
Columbia ^{***}	Missouri				.04								.16	.52	.02	T.	.86	.23		T.	T.												.20	1.77	
Downing	Mississippi		T.	.05	.32								.90	T.	T.	.25	.20			T.	T.												T.	2.04	
Fayette ¹	Missouri				.10								.77	.15			.06	.90																1.98	
Pultou	do				.01	.04							.03	.50	.16	T.	.03	.98	.01														T.	1.81	
Gorin	Mississippi				.03	.15							.91				.59				T.	T.	T.										T.	1.71	
Hannibal ^{***}	do				.06								.02	.32			1.01	.34		T.	T.	T.							.04				T.	1.92	
Hermann ¹	Missouri				.02								.24	.32	.18			.20	1.12														.13	2.16	
Jefferson City ¹	do												.50	.18					1.10														.02	2.16	
Kirksville	Mississippi				.30								1.20				.32		.40														.20	2.42	
Louisiana	do				T.												.90	.89																1.79	
Macon ¹	Chariton				.25								.68	.15			.40	.70																2.18	
Mexico ¹	Mississippi				T.	.20							.52	.10					1.14															2.05	
Milan ¹	Grand				.10			.20					T.				.40	.10																.03	2.05
Monroe City	Mississippi				.06								.02	.60			1.22	.24	T.	T.	T.													2.30	
Pacific ¹	Meramec				.10								.20	.57		.16	.18	.85																2.22	
St. Charles	Missouri				.12								T.	.50			.23	.90									T.							1.87	
St. Louis (1) ^{***}	Mississippi				.09				T.				.05	.04	.55	T.	.64	.62																.09	2.22
St. Louis (2) [*]	do				.13				T.				.05	.07	.64		.77	.23																.03	2.02
Shelbina ¹	do					.11							.52	.08					1.01															1.90	
Stellenville	do				.15		T.	T.	T.				.93				.55	.50		T.	T.													2.18	
Union ¹	Meramec				.06	.05							.38	.53	.04		.10	.80	.12															2.23	
Unionville	Chariton				.30								.55	T.					T.															0.85	
Warrenton	Mississippi				.10								.11	.53	T.		.23	.70															T.	1.84	
Keokuk, Ia. ^{***}	do				.10	.20							T.	.55		T.	.69	.14		T.	T.												.17	1.85	
Southeast Lowlands																																			
Campbell ¹	St. Francis											.15	.20	.82				2.10															.24	3.71	
Cape Girardeau ¹	Mississippi				.10	.51							.13	.52	.06		.22	1.30	.09								.02							2.98	
Caruthersville ¹	do				.40								.60	.35				.198																4.61	
Dexter ¹	St. Francis				.76								.38	.63	.04		.42	1.38															.13	3.61	
Doniphan	Black				.47								.60	.15	.51		.07	1.15																.05	3.00
Jackson	Mississippi				.65								.05	.19	.96		.50	1.10																3.48	
Marble Hill	Mississippi				.90								.20	.22	1.10		.54	1.12																4.18	
Morehouse	do				.93								.03	.43	1.83		.24	1.49																.09	5.04
New Madrid ¹	do				.62									.45	1.30	.10		.180	.32															4.63	
Poplar Bluff	Black				.31									.42	.60	.03		.42	1.06	T.														3.00	
Sikeston ¹	Mississippi				.68								.42	.40				1.78																3.28	
Calico, Ill. ^{***}	do				.70				T.			.10	.41	.30	T.		.60	.93																.20	3.26
Ozark Plateau																																			
Arcadia ¹	St. Francis				.43								.05	.65	.17		.77	.37	T.															2.44	
Aurora	Neosho												.60	.35			.90	.60																2.27	
Birchtree (near)	Black				.61								.12	.90			.35	.65																2.63	
Bolivar	Osage													.75			1.84	.35																3.07	
Caplinger Mills	Osage				T.									.75																				.13	3.07
Denn	Neosho				.13								T.	T.		.15	.90	.30																1.48	
Eldon ¹	Missouri												.40	.27	.26		1.05																	2.04	
Farmington	St. Francis				.55								.08	.75			.85	.47																2.84	
Fredericktown ¹	do				.30	.10							.05	1.00		.30	.10	.85																3.18	
Galeana ¹	White				.95								.05	.95	.25		.38	1.05																3.58	
Goodland	Black				.46								.10	.75	.10		.40	.52																2.33	
Greenville	St. Francis				.78								.30	.86	.05		* 1.55																	3.54	
Haley	White												1.03																					1.03	
Koshkonong	Black				1.35								.03	.98			.52	.73																3.83	
Lebanon ¹	Osage				.10								.15	.35	.23		.18	1.80																2.81	
Lockwood	do												.64				3.10	.73																4.63	
Mountain Grove ¹	White				.53	.14							.11	.62	.24	T.	.10	.65	T.															.05	2.39
Neosho	Neosho				T.								.05	.40		T.	.98	.56																T.	1.99
Owensville ¹	Gasconade				.20			.20					.30	.10			.90	.10																1.70	
Rolla ¹	Meramec				.20								.10																						

Daily Temperatures for December, 1928

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean		
Northeast Plain																																		
Brunswick	Maximum	52	53	40	33	33	42	30	37	47	54	41	48	55	45	55	50	33	42	29	37	34	34	40	35	48	47	51	48	39	44	39	42.4	
	Minimum	30	30	29	29	10	13	20	14	15	25	26	36	37	42	42	42	32	25	21	21	19	14	18	25	21	22	29	28	29	24	28	25.7	
Columbia	Maximum	51	59	42	36	33	45	32	35	50	55	52	46	52	46	54	50	39	41	35	37	34	32	39	50	50	50	50	40	42	41	44.3		
	Minimum	31	37	30	17	14	23	20	15	25	29	35	38	46	41	42	39	27	25	20	20	20	24	24	21	39	32	40	24	25	24	28.0		
Fayette	Maximum	51	51	44	33	34	44	33	36	50	56	51	48	53	44	55	49	48	42	39	40	38	38	39	34	49	49	52	61	42	43	45	41.7	
	Minimum	25	25	26	29	7	12	16	10	14	20	20	34	36	38	38	39	29	22	20	18	15	17	18	21	17	21	28	31	26	18	27	23.1	
Hannibal	Maximum	47	55	42	33	30	43	32	33	46	52	50	45	52	49	53	49	36	41	35	39	26	33	42	46	47	51	48	56	40	37	40	42.6	
	Minimum	30	33	31	15	11	22	20	15	26	23	31	37	43	43	42	36	28	25	21	15	14	17	25	24	25	39	34	28	25	24	27	27.1	
Jefferson City	Maximum	60	67	50	46	42	49	39	46	56	60	57	50	60	47	57	54	40	40	40	43	41	39	45	50	55	57	52	76	44	48	42	50.2	
	Minimum	30	32	29	32	11	12	20	13	18	22	29	36	41	41	40	42	30	22	25	19	13	18	21	28	25	24	27	33	31	21	23	26.1	
Kirksville	Maximum	48	51	46	31	29	40	30	31	43	50	45	43	47	47	47	45	40	41	36	25	21	41	43	44	47	47	50	41	36	37	40	42.6	
	Minimum	26	30	26	17	0	2	8	7	18	22	31	35	39	38	39	34	27	20	8	16	11	20	19	23	33	29	35	23	22	27	23.4		
Louisiana	Maximum	50	56	55	42	33	45	40	35	40	...	...	...	...	55	52	55	52	40	40	33	30	35	45	50	50	55	48	50	40	40	45.4	
	Minimum	29	29	30	29	13	20	28	11	20	...	...	...	...	20	30	45	30	25	22	13	18	20	20	20	35	32	35	32	35	32	25.3	
Macon	Maximum	48	52	40	30	30	39	29	35	43	50	49	45	51	45	52	49	32	39	26	31	29	31	37	44	40	48	46	51	45	38	41	40.9	
	Minimum	29	31	27	29	4	7	23	10	12	24	27	33	37	39	40	41	30	23	20	18	14	13	16	22	22	34	29	30	25	29	24	21.6	
Mexico	Maximum	51	58	44	34	32	44	33	34	48	53	50	48	53	46	55	48	34	41	27	35	30	32	39	45	46	52	48	63	38	41	40	43.4	
	Minimum	31	31	29	29	10	12	24	12	13	23	28	32	38	41	41	42	32	23	23	20	16	16	19	24	23	26	31	30	29	22	27	25.7	
St. Louis(1)	Maximum	55	64	47	40	29	41	37	34	49	54	49	52	56	50	49	50	48	47	40	33	35	32	45	46	50	53	48	75	42	41	46	46.3	
	Minimum	34	36	35	25	16	25	22	18	22	34	36	41	47	46	44	41	31	26	24	21	17	20	23	34	34	38	37	40	30	27	34	31.0	
Unionville	Maximum	44	47	44	37	32	40	38	32	46	50	50	44	46	46	46	40	45	42	25	24	34	40	42	45	45	50	40	44	36	35	41.6		
	Minimum	26	30	23	17	3	15	16	6	18	18	30	34	36	35	38	37	28	20	16	16	10	7	20	17	22	32	28	25	22	20	22	22.5	
Warrenton	Maximum	54	58	54	45	34	46	43	35	51	58	54	48	56	53	52	50	49	43	40	39	29	29	44	46	51	53	47	73	69	44	42	48.0	
	Minimum	29	33	30	29	10	22	26	11	21	32	32	37	41	43	42	44	29	23	26	19	14	16	19	28	26	35	32	35	30	23	32	28.1	
Southwest Lowlands																																		
Campbell	Maximum	57	61	58	47	43	45	43	42	45	55	45	51	64	58	55	56	52	45	49	44	48	42	47	52	54	58	56	72	72	48	42	51.8	
	Minimum	30	26	31	29	20	17	21	15	17	20	24	39	48	45	39	40	34	25	22	18	22	22	19	25	24	28	30	34	38	26	27	27.5	
Caruthersville	Maximum	56	60	59	55	46	40	45	38	44	54	54	61	64	63	52	53	55	44	50	42	48	47	47	48	54	58	57	71	68	47	46	52.5	
	Minimum	38	37	40	40	26	24	28	22	23	29	36	42	50	49	48	43	41	27	28	25	27	32	26	38	30	37	37	38	41	28	34	34.6	
Doniphan	Maximum	60	61	59	50	44	44	41	36	43	53	50	50	50	50	46	45	46	46	46	45	44	46	46	46	51	57	56	69	72	62	43	51.0	
	Minimum	27	27	31	36	20	16	16	16	15	19	25	34	50	56	45	40	33	25	21	17	21	22	17	26	21	24	30	25	26	19	22	26.5	
Jackson	Maximum	54	56	54	46	42	42	40	36	42	53	48	51	59	54	50	49	52	43	45	40	42	41	42	45	56	54	52	66	65	52	44	48.9	
	Minimum	26	27	33	31	17	15	20	15	15	22	23	37	45	40	42	38	31	24	22	18	13	23	17	30	22	32	38	25	32	17	19	26.1	
Poplar Bluff	Maximum	56	61	59	44	39	44	45	39	46	58	45	43	62	52	40	50	50	46	46	46	45	45	45	45	54	54	57	56	70	64	48	43	50.2
	Minimum	29	26	31	30	19	16	20	17	14	20	19	40	42	48	40	40	39	26	22	17	20	21	18	29	22	28	26	36	27	38	20	23	26.8
Sikeston	Maximum	57	55	56	50	42	41	42	35	51	56	49	51	61	65	60	51	48	45	46	45	45	45	45	45	53	53	58	56	71	65	56	50	51.6
	Minimum	33	30	34	35	22	20	25	20	24	29	40	48	48	45	44	31	27	23	22	23	27	25	21	28	28	33	33	36	23	30	30.1		
Cairo, Ill.	Maximum	53	56	53	45	36	40	38	35	42	54	53	55	59	52	51	52	43	45	41	45	41	45	41	49	52	56	51	67	60	45	41	48.6	
	Minimum	36	37	37	36	22	24	24	21	24	30	34	42	50	49	44	42	33	29	30	24	23	28	26	35	32	38	37	38	30	26	31	32.6	
Ozark Plateau																																		
Arcadia	Maximum	59	55	55	40	38	47	35	38	47	59	58	54	57	50	48	48	41	47	42	44	40	37	44	44	52	53	58	70	78	45	45	46	48.1
	Minimum	24	24	30	29	14	14	15	14	14	21	26	30	40	40	44	41	39	22	22	18	15	17	15	20	19	19	29	28	34	14	14	24.1	
Aurora	Maximum	56	65	54	44	41	47	38	40	55	60	54	47	54	54	49	49	48	36	44	47	37	44	38	53	50	56	76	65	50	45	49	48.8	
	Minimum	31	33	28	29	16	23	24	16	25	29	38	37	39	40	39	46	27	23	25	20	27	24	25	27	24	37	32	45	27	22	29	29.3	
Birchtree	Maximum	51	61	56	45	40	41	36	38	50	59	48																						

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Nat. Hist.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

MISSOURI SECTION.

GEORGE REEDER, Meteorologist.

VOL. XXXII. COLUMBIA, Mo., YEAR, 1928. No. 13.

GENERAL SUMMARY.

The prevailing tendency to mild and open weather of the winter and the early spring months, the late April frosts, and the excessive rainfalls of June and November, were the outstanding features of the weather conditions in Missouri during the year 1928. There were no extensive damaging wind or hail storms during the year and, despite some adverse conditions such as late April frosts, and floods in June and November, the year as a whole was highly favorable for farmers and practically all outdoor occupations.

The mean temperature for the year was 55.2°, which compares closely with the 40 years' normal. The highest temperature of the year was 102° on July 21, at Clinton, Henry County. The lowest temperature was -18° on January 2, at Louisiana, Pike County. Zero to subzero temperatures occurred on a few days during the first part of January, and on one or two days in February. The temperature reached the freezing point or lower, (32°F) on 105 days. Twenty-three of those days were in January and in December, twenty-one in February, eighteen in March, eight in April, and twelve in November. The temperature reached 90° or higher on 37 days, one day in May, two in June, fourteen in July, fifteen in August, three in September, and two in October; and 100° or higher occurred at a few stations on one day in July.

The total precipitation was 45.59 inches, or 5.26 inches more than normal, and 8.60 inches less than the record breaking wet year of 1927. The greatest local annual amount was 67.40 inches, at Marble Hill, Bollinger County. The wettest month of the year was June, with 11.17 inches for the State as a whole, and more than double the normal. The heaviest local monthly amount was 22.00 inches in June, at Jackson, Cape Girardeau County. The driest month of the year was January, with only 0.87 inch, or more than one-half less than the normal. The seasonal snowfall (November to March) was 7 inches, for the State as a whole. The top of the Ozarks and a few central and northern stations received more than 10 inches. The greatest local seasonal fall was 22 inches, at Rolla, Phelps County.

For the State as a whole, January, February, March, October, and December were unusually mild months. The first five months of the year averaged more than 10° warmer than the normal. Both June and September were decidedly cool for hot weather months. July, August, and November had nearly normal temperatures. January, March, May, and July were more than three inches drier than normal; February, April, August, and September were wetter than normal, and June and November were the wettest in the annals of Missouri climatology for a summer and fall month. The first five months combined were more than 3 inches drier than normal, but the June rainfall wiped this out and gave a large excess, and a large accumulative excess continued to the end of the year. The June rainfall alone was within 1.15 inches of the combined totals of the preceding five months; and the total for November equaled the combined totals of October and December.

The sunshine averaged about normal, the large number of bright days of October and December more than balanced the cloudy weather of November. As usual the prevailing winds were from southerly points.

THE WEATHER BY MONTHS.

JANUARY.—Considering the month as a whole, the prevailing weather was relatively mild and dry in all Missouri. The first

four days were of the real winter type, when minimum temperatures ranged from a few degrees above zero to several degrees below, -18° being the lowest, at one station, Louisiana, Pike County. Both rain and snow were scanty in all sections, but especially in the northwestern plateau where a number of stations, had less than 0.10 of an inch to inappreciable monthly totals. Wheat was damaged locally by the first few days cold; also peach buds. Traffic and general business was favored by the open weather.

FEBRUARY.—This month continued the fine weather of the preceding month of January, being mainly mild though somewhat wetter. It made the fifth consecutive warmer than normal February, at the same time it was the first plus moisture departure since 1915. Two moderate cold waves overspread the State, on the 18th, and on the 24th. The highest temperature for the month was 71° on the 11th, and the lowest was -2° on the 24th. The precipitation, while generally sufficient for needs, was unevenly distributed, being more than the normal in northern and less than normal in southern sections. The snowfall was rather light. In a few localities appreciable depths remained on the ground two or three days. Owing to much thawing and consequent soft ground there was little farm activity. Much late sown wheat in eastern and southern parts was winter killed.

MARCH.—A month noticeable for small rainfall, small snowfall, and bright sunny skies. There were some temperature contrasts but the month was mainly mild. The first five days were the coldest and minima ranged from 20° to 10° above zero, and the month closed with night values around the freezing point. Real summer-like weather prevailed for several days beginning on the 21st, with day temperatures ranging well into the 80s. For much of the State it was one of the driest first spring months of record. There was a heavy snowfall over most of the Ozarks about the middle of the month, the beginning of the storm being a mixture of rain, sleet, and snow. Twenty-four hours later it was nearly all gone. The weather was unusually favorable for outdoor occupations. Oats seeding was completed, and much plowing was done. Fall sown grains did well. The warm weather was unfavorable for peaches, forcing the buds too much.

APRIL.—The prevailing mild weather of March overlapped the first four days of April in all Missouri, but a reaction to below normal temperatures followed on the 5th to the 7th that persisted practically nearly the remainder of the month. A general freeze on the 8th, and 9th, and again from the 13th to the 15th, seriously injured most tree fruits, which had been forced beyond the seasonal state by the warm March. The month was remarkably free from damaging wind, hail, and excessive rain storms. The precipitation was unevenly distributed, being far too much in the southeastern lowlands, and rather short in central and northern sections. Much plowing was done, but the cool weather, and lack of sufficient moisture over more than the northern half of the State, and too much in other sections rather adversely affected most vegetation and crops.

MAY.—Quite a favorable month from the temperature side, and, except local wind storms in Atchison, and Cass Counties on the 15th, was free from storm damage of any kind. There were no injurious frosts. The established tendency to scanty precipitation over most of the State in March and April continued in May. However, with some generous and well distributed showers about the middle and near the end of the month vegetation showed no serious setbacks. The weather largely favored outdoor occupations and especially farm activities, corn planting being finished with soil in good shape.

(Continued on Page 53.)

Climatological data for Year, 1928

Stations	Counties	Elevation, feet	Temperature (Degrees Fahrenheit)						Precipitation (Inches)						Number of days						Prevailing direction of wind
			Length of record, yrs.	Annual mean	Highest	Date	Lowest	Date	Length of record, yrs.	Total	Greatest monthly	Month	Least monthly	Month	Total snowfall	With precip. .01 inch or more	Clear	Partly cloudy	Cloudy		
Northeast Plain.																					
Brunswick	Chariton	652	50	54.0	97	July 5†	-10	Jan. 2	50	43.19	9.59	June	0.17	Mar.	10.2	101	196	26	144	sw.	
Clifton Hill	Randolph	731	30	53.3	95	Aug. 16	-13	Jan. 1†	20	41.84	7.58	June	0.27	Jan.	7.6	101	186	84	96	...	
Columbia	Boone	784	39	54.8	94	July 5	-9	Jan. 1	39	43.07	14.86	June	0.09	Mar.	8.6	110	149	104	113	sw.	
Downing	Schuyler	878	8	52.7	96	July 20	-8	Jan. 2	20	53.81	12.74	June	0.03	Jan.	9.5	95	188	91	82	w.	
Fayette	Howard	661	49	53.3	96	July 5†	-12	Jan. 1	46	44.52	10.14	June	0.67	Jan.	4.1	94	...	...	...	...
Fulton	Callaway	818	40	54.5	95	July 20	-12	Jan. 3	37	36.19	10.02	June	0.70	Mar.	6.0	112	105	193	63	...	
Gorin	Scottland	700	...	...	...	...	...	...	42	42.30	6.35	S pt.	0.27	Jan.	5.9	86	132	86	148	nw.
Hannibal	Marion	534	37	54.1	95	July 19†	-14	Jan. 2	45	32.18	5.08	June	0.41	Jan.	4.6	107	147	100	119	sw.	
Jefferson City	Cole	557	41	55.8	98	Aug. 4	-10	Jan. 1	45	35.05	8.80	June	0.55	Mar.	5.7	93	212	79	75	n.	
Kirksville	Adair	969	40	52.7	94	Aug. 2	-9	Jan. 1	47	40.58	8.22	Nov.	T.	Jan.	9.8	69	201	46	117	nw.	
Louisiana	Pike	469	35	...	96	July 3†	-18	Jan. 2	48	...	...	...	0.30	Jan.	...	...	...	...	...	...
Macon	Macon	875	30	53.0	98	July 21	-12	Jan. 1†	36	40.59	8.15	Nov.	0.25	Jan.	7.8	93	173	103	90	sw.	
Mexico	Audrain	800	40	54.1	97	July 19	-10	Jan. 2	51	42.88	13.17	June	1.09	Jan.	11.0	101	243	12	111	w.	
Monroe City	Monroe	...	...	...	...	...	...	...	9	40.48	6.72	June	0.48	Jan.	1.8	97	190	90	86	se.
St. Charles	St. Charles	456	41	55.8	96	July 5†	-8	Jan. 1	61	35.21	7.96	June	0.92	Mar.	7.5	75	151	100	115	s.	
St. Louis (1)	St. Louis City	717	55	56.6	95	July 3	-6	Jan. 1	92	38.61	7.25	June	1.70	Sept.	6.4	103	156	103	107	sw.	
St. Louis (2)	do	578	17	55.8	94	July 2†	-6	Jan. 1	17	35.46	7.30	June	1.39	Sept.	9.3	109	176	93	97	se.	
Shelbina	Shelby	779	...	...	...	...	...	...	36	36.81	6.67	June	0.26	Jan.	8.0	99	...	...	...	...
Steffenville	Lewis	660	31	53.6	98	Aug. 15	-12	Jan. 2	36	42.48	7.20	Nov.	0.30	Jan.	9.5	82	160	128	78	n.	
Unionville	Putnam	1,062	36	52.2	94	July 18†	-8	Jan. 1†	36	54.49	9.50	June	0.08	Jan.	11.0	89	170	82	114	sw.	
Warrenton	Warren	816	47	55.8	96	July 3†	-11	Jan. 1	39	38.96	10.70	June	0.87	Mar.	11.0	92	159	118	89	sw.	
Keokuk, Iowa	Lee, Iowa	574	57	53.1	96	July 6	-10	Jan. 2	57	36.76	5.91	Oct.	0.41	Jan.	10.5	96	185	82	149	s.	
Section means and extremes		...	...	54.2	98	July 21†	-18	Jan. 2	...	41.11	14.56	June	T.	Jan.	7.9	95	170	91	105	sw.
Southeast Lowlands.																					
Campbell	Dunklin	314	3	57.6	97	Aug. 15†	-5	Jan. 3	3	53.86	13.11	June	1.42	July	0.0	98	165	93	108	n.	
Caruthersville	Pemiscot	265	33	...	98	July 6	...	...	33	...	10.90	June	0.22	Sept.	0.0	...	...	...	...	s.
Doniphan	Ripley	344	25	57.2	97	July 5	-4	Jan. 3	25	53.18	12.90	June	1.01	Sept.	3.0	90	164	141	61	sw.	
Jackson	Cape Girardeau	428	38	55.6	95	Aug. 9	-6	Jan. 1	39	60.84	22.00	June	0.07	Sept.	6.0	102	108	89	169	n.	
Marble Hill	Boiling	470	34	56.9	97	July 20	-5	Jan. 1	35	67.40	20.70	June	0.00	Sept.	T.	92	168	88	110	n.	
Morehouse	New Madrid	289	...	...	...	...	...	...	8	57.98	17.16	June	0.16	Sept.	0.2	103	217	66	80	sw.
Poplar Bluff	Butler	339	25	57.8	96	July 5†	-6	Jan. 3	25	57.54	14.93	June	0.67	Sept.	1.0	95	214	69	83	w.	
St. Louis	Scott	318	23	...	96	Aug. 16†	-3	Jan. 2†	28	...	16.88	June	0.14	Sept.	T.	...	...	...	...	sw.
Cairo, Ill.	Alexander, Ill.	359	54	57.9	94	July 4	-2	Jan. 1	57	45.88	15.70	June	0.14	Sept.	0.4	115	116	108	142	s.	
Section means and extremes		...	...	57.5	98	July 6	-6	Jan. 1†	...	59.55	22.00	June	0.00	Sept.	1.2	99	164	93	109	sw.
Ozark Plateau.																					
Arcadia	Iron	926	48	53.3	92	July 4†	-8	Jan. 1†	51	47.72	14.04	June	0.25	Sept.	5.0	89	263	19	84	se.	
Aurora	Lawrence	1,370	28	56.8	92	July 3†	-7	Jan. 1	39	55.58	18.07	June	0.60	Jan.	5.7	83	186	87	93	sw.	
Birchtree (near)	Shannon	1,000	34	56.1	93	Aug. 16†	-6	Jan. 1†	35	50.90	13.56	June	1.35	Sept.	4.0	84	222	55	89	sw.	
Bolivar	Polk	1,071	35	...	...	...	...	...	42	...	14.45	June	0.46	Sept.	...	...	...	...	...	...
Dean	McDonald	1,000	26	59.0	96	July 20†	-7	Jan. 3	30	51.23	13.67	June	0.61	Sept.	1.9	84	256	36	64	se.	
Eldon	Miller	934	33	54.9	96	Aug. 16†	-8	Jan. 1†	29	37.03	8.74	June	0.64	Mar.	8.3	80	93	175	87	sw.	
Farmington	St. Francis	918	18	55.2	96	July 5†	-8	Jan. 1	32	47.75	13.94	June	0.11	Sept.	12.0	101	139	148	79	sw.	
Goodland	Iron	1,000	35	54.5	95	Aug. 8	-10	Jan. 3	36	41.75	11.24	June	0.69	Sept.	11.0	90	179	81	106	s.	
Greenville	Wayne	381	6	...	94	July 5†	...	...	7	60.90	19.31	June	0.02	Sept.	...	...	...	...	...	...
Hailey	Barry	1,350	...	...	...	...	...	...	4	43.41	11.76	June	0.40	Sept.	9.0	62	217	71	78	w.
Koshkonong	Oregon	953	28	57.7	95	Aug. 16	-4	Jan. 1	28	54.38	13.45	June	0.58	Sept.	T.	90	152	77	126	sw.	
Lebanon	Laclede	1,265	41	53.8	98	July 20†	-11	Jan. 1†	42	47.61	14.51	June	0.54	Sept.	10.5	99	207	68	91	se.	
Lockwood	Dade	1,073	23	56.8	94	July 20†	-7	Jan. 1	33	44.77	11.15	June	0.30	Sept.	11.7	73	203	70	93	nw.	
Mountain Grove (near)	Wright	1,463	28	56.2	96	July 19	-9	Jan. 1	30	48.62	13.31	June	0.14	Sept.	5.0	107	185	94	77	nw.	
Neosho	Newton	1,011	41	57.2	93	Aug. 8†	-10	Jan. 3	46	56.12	13.89	June	0.45	Sept.	5.1	97	239	61	66	sw.	
Rolla	Phelps	1,099	29	55.6	96	July 21	-10	Jan. 1	45	38.06	8.18	June	0.51	Sept.	21.8	90	173	112	80	w.	
Salem (near)	Dent	1,173	25	54.3	93	July 19†	-10	Jan. 3	28	42.12	10.91	June	0.13	Sept.	13.1	97	184	90	92	nw.	
Seligman	Barry	1,642	16	58.2	93	Aug. 8†	-10	Jan. 1	26	55.85	14.77	June	0.32	Sept.	5.0	88	...	...	...	sw.
Seymour (near)	Webster	1,642	23	54.9	92	July 19†	-10	Jan. 1	23	51.85	16.69	June	T.	Sept.	4.5	74	204	77	85	s.	
Springfield	Greene	1,350	41	56.0	92	July 20	-8	Jan. 1	41	44.37	12.27	June	0.05	Sept.	13.9	106	218	77	71	s.	
Section means and extremes		...	...	55.9	98	July 20†	-11	Jan. 1†	...	47.08	19.31	June	T.	Sept.	8.2	89	196	83	87	sw.
Southwest Plain.																					
Appleton City	St. Clair	853	35	56.3	95	Aug. 15†	-12	Jan. 3	37	41.66	7.86	June	0.35	Jan.	3.3	88	130	184	52	sw.	
Centerville	Johnson	872	42	...	97	Aug. 28	-11	Jan. 1	49	42.93	10.88	Nov.	0.33	Jan.	11.5	76	...	...	...	sw.
Clinton	Henry	765	36	57.2	102	July 21	-11	Jan. 1	42	42.88	7.06	June	0.79	Mar.	6.6	76	161	128	72	sw.	
Harrisonville	Cass	904	52	54.1	95	July 5†	-13	Jan. 1	54	45.03	10.84	Nov.	0.25	Jan.	7.3	89	96	46	224	n.	
Lamar	Barton	960	42	56.0	95	Aug. 28	-10	Jan. 3	48	44.23	11.26	June	0.21	Jan.	9.0	104	193	79	94	sw.	
Lamonte	Pettis	867	23	55.7	98	Aug. 15	-14	Jan. 3	42	40.78	8.16	June	0.11	Mar.	8.0	95	184	130	52	sw.	
Marshall	Saline	779	40	...	...	...	...	...	40	...	...	...	0.20	Jan.	...	...	...	...	...	sw.
Nevada	Vernon	862	36	57.0	94	July 21†	-9	Jan. 1†	37	43.14	13.32	June	0.19	Jan.	11.0	62	198	75	93	s.	
Warsaw	Benton	687	29	57.4	96	July 21	-16	Jan. 3	34	39.17	6.71	Aug.	0.25	Jan.	3.8	71	149	131	86	w.	
Section means and extremes		...	...	56.2	102	July 21	-16	Jan. 3	...	44.01	13.32	June	0.11	Mar.	7.5	83	159	111	96	sw.
Northwest Plateau.																					
Bethany	Harrison	916	36	53.4	96	Aug. 2	-9	Jan. 1	36	43.30	7.86	June	0.05	Jan.	7.4	83	151	101	109	nw.	
Chillicothe	Livingston	779	20	53.0	97	July 5†	-11</														

Monthly and Annual Precipitation for the Year 1928, with Departures

Stations	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure
Northeast Plain.																										
Boonville	0.58	-1.29	1.30	-1.12	1.20	-1.83	3.27	-0.64	1.71	-3.52	9.77	+4.30	2.09	-1.83	9.63	+5.90	3.72	-0.97	2.85	+0.02	6.19	+3.88	1.97	+0.06	44.28	+4.79
Brunswick	0.24	-1.39	2.35	+0.50	0.17	-2.39	2.47	-1.01	2.05	-2.84	9.59	+4.40	2.59	-2.05	5.86	+1.97	7.43	+3.04	3.04	+0.31	5.32	+3.35	2.08	+0.46	43.19	+4.35
Clifton Hill	0.27	-1.33	2.03	+0.70	0.47	-2.18	2.50	-1.86	2.21	-2.93	7.58	+3.24	2.33	-1.55	6.05	+2.02	5.46	+0.60	3.17	+1.05	7.21	+5.30	2.56	+1.16	41.84	+4.22
Columbia	0.94	-1.29	2.10	-0.12	0.69	-2.34	2.89	-0.81	1.74	-3.12	14.86	+10.48	3.72	+0.07	3.22	+0.18	3.33	+0.48	2.86	+0.44	4.68	+2.37	2.04	+0.09	43.07	+6.37
Downing	0.03	-1.70	2.41	+1.01	1.67	-0.69	3.25	-0.50	1.82	-2.59	12.74	+8.36	6.08	+1.15	4.28	+0.76	9.04	+4.33	5.23	+3.03	5.49	+3.86	1.77	+0.31	53.81	+17.33
Fayette	0.67	-1.32	1.16	+0.26	0.73	-2.08	3.93	+0.39	1.29	-3.33	10.14	+5.60	4.77	+1.12	5.59	+2.37	3.63	+1.20	3.11	+0.63	6.52	+4.52	1.98	+0.35	44.52	+7.31
Fulton	0.87	-1.48	1.03	-0.86	0.70	-2.34	4.71	+0.38	3.52	-1.25	10.02	+5.82	2.07	-1.92	4.29	+0.78	1.41	-2.98	2.79	+0.04	2.97	+0.72	1.81	-0.11	36.19	-3.20
Gorin	0.27	-1.28	2.74	+1.25	1.27	-1.19	2.53	-1.47	2.60	-2.01	6.23	+2.32	4.25	+0.22	3.23	+0.23	6.35	+2.06	5.26	+2.88	5.86	+3.90	1.71	+0.02	42.30	+6.93
Hannibal	0.41	-1.79	2.02	+0.35	0.93	-1.83	2.61	-0.64	3.28	-1.72	5.08	+1.56	2.76	-0.99	0.96	-2.42	4.42	+0.86	3.97	+2.33	3.82	+1.87	1.92	+0.27	32.18	-2.15
Hermann	1.39	-0.76	1.36	-0.87	0.96	-2.05	4.59	+0.65	1.92	-2.46	11.99	+7.67	1.49	-2.16	4.89	+1.70	1.64	-2.39	2.63	-0.16	1.90	-0.82	2.16	+0.34	36.92	-1.31
Jefferson City	0.94	-1.28	1.60	-0.49	0.55	-2.27	4.60	+1.06	2.32	-2.23	8.80	+4.78	3.10	-0.35	5.63	+2.57	1.56	-1.72	1.79	-0.80	2.32	+0.05	1.84	-0.01	35.05	-0.69
Kirksville	T.	-1.53	1.96	+0.14	0.97	-1.80	2.77	-0.87	1.05	-4.16	6.79	+2.52	3.09	-1.36	4.70	+1.38	4.76	+0.45	3.85	+1.12	8.22	+6.46	2.42	+0.78	40.58	+3.13
Louisiana	0.30	-1.72	2.91	+0.56	0.81	-2.09	.....	.....	.....	.....	.....	.....	1.90	-1.22	1.40	-2.33	3.23	-0.72	4.53	+1.90	3.50	+1.22	1.79	+0.10	.....	.....
Macon	0.25	-1.35	2.24	+0.29	0.69	-2.00	2.64	-0.55	2.33	-2.24	7.53	+3.12	1.72	-2.04	4.34	+1.06	3.94	-0.27	4.58	+1.85	8.15	+6.22	2.18	+0.78	40.59	+4.87
Mexico	1.09	-0.96	2.22	+0.01	1.56	-1.23	2.74	-0.93	2.05	-2.71	13.17	+8.39	1.61	-2.14	3.90	+0.65	5.62	+0.94	3.07	+0.69	3.80	+1.48	2.05	+0.05	42.88	+4.24
Milan	T.	.....	2.55	.....	1.26	.....	2.20	.....	1.74	.....	8.56	.....	2.75	.....	5.96	.....	6.90	.....	3.50	.....	7.95	.....	0.80	.....	44.17	.....
Monroe City	0.48	.....	2.65	.....	1.47	.....	2.50	.....	1.31	.....	6.72	.....	5.57	.....	3.34	.....	4.26	.....	3.44	.....	6.44	.....	2.30	.....	40.48	.....
Pacific	1.69	-0.72	1.69	-0.65	1.53	-2.18	4.15	+0.07	2.89	-2.10	13.97	+9.60	1.58	-2.50	5.53	+1.71	0.99	-2.87	2.75	-0.20	2.24	-0.51	2.22	+0.16	41.23	-0.19
St. Charles	1.22	-1.05	2.19	-0.44	0.92	-2.17	4.94	+1.26	2.65	-1.53	7.96	+4.00	5.10	+1.87	3.57	+0.11	1.63	-1.65	3.42	+0.75	0.74	-1.80	1.87	0.00	36.21	-0.65
St. Louis (1)	1.91	-0.43	2.43	-0.20	2.27	-1.11	3.02	-0.79	2.18	-2.16	7.25	+3.43	6.66	+3.68	4.83	+1.84	1.70	-1.76	2.24	-0.48	1.90	-0.93	2.22	+0.01	38.61	+1.10
St. Louis (2)	1.60	-1.47	2.99	+0.68	1.84	-1.11	3.08	-0.93	2.88	-1.36	7.30	+3.54	4.77	+2.02	3.25	-2.36	1.39	-3.25	2.39	-1.40	1.95	-0.36	2.02	-0.08	35.46	-6.08
Shelbina	0.26	-1.46	2.55	+0.63	1.10	-1.75	2.86	-0.67	1.19	-3.79	6.67	+1.96	2.40	-1.76	2.85	-0.00	5.20	+1.22	4.40	+1.68	5.43	+3.35	1.90	+0.29	36.81	-0.30
Steensville	0.30	-1.89	2.24	+0.39	1.25	-1.66	3.98	+0.37	3.15	-1.80	6.56	+2.42	3.25	-1.18	3.75	+0.28	3.40	-0.79	5.22	+3.10	7.20	+5.27	2.18	+0.62	42.48	+5.17
Union	1.68	+0.36	1.61	+0.21	1.15	-1.39	5.57	+0.94	3.55	-0.60	11.73	+7.92	0.65	-2.09	6.54	+1.37	1.77	-2.38	1.91	-1.83	1.87	-0.70	2.23	-0.27	41.26	+1.54
Unionville	0.08	-1.76	3.26	+1.43	2.50	+0.11	3.60	-0.21	1.92	-3.04	9.50	+4.82	5.05	+0.76	7.65	+3.69	8.60	+3.99	5.00	+2.54	6.48	+4.66	0.85	-0.79	54.49	+16.20
Warrenton	1.43	-0.95	1.70	-0.49	0.87	-2.50	4.88	+0.57	2.91	-1.88	10.70	+6.74	1.66	-1.76	5.54	+2.36	1.75	-2.29	3.53	+0.67	2.15	-0.44	1.84	-0.29	38.96	-0.26
Southeast Lowlands																										
Campbell	1.73	.....	3.14	.....	2.48	.....	6.60	.....	2.75	.....	13.11	.....	1.42	.....	5.84	.....	1.47	.....	8.41	.....	3.20	.....	3.71	.....	53.86	.....
Cape Girardeau	1.75	-2.17	3.44	+1.26	2.06	-1.35	6.89	+2.95	4.00	-0.27	20.04	+16.32	1.79	-1.11	5.35	+1.08	0.00	-2.32	8.66	+5.42	6.32	+2.98	2.98	-0.31	63.28	+22.48
Caruthersville	.....	.....	2.29	-1.51	2.33	-1.67	4.81	+0.69	3.64	-0.62	10.90	+6.92	1.36	-2.05	5.48	+1.91	0.22	-2.88	7.18	+4.22	3.32	-0.53	4.61	+0.17	.....	.....
Dexter	2.33	.....	3.39	.....	1.15	.....	8.29	.....	3.93	.....	14.18	.....	2.01	.....	4.68	.....	T.	.....	8.97	.....	5.12	.....	3.61	.....	57.66	.....
Doniphan	2.26	-1.95	2.97	-0.18	2.04	-1.55	7.44	+2.07	3.71	-0.45	12.90	+8.52	3.09	-1.64	5.89	+1.58	1.01	-2.63	6.16	+3.11	7.71	+4.59	3.00	-0.33	58.18	+11.14
Jackson	1.32	-2.40	3.42	+0.53	1.80	-2.54	6.42	+1.95	3.46	-0.90	22.00	+17.71	1.06	-2.46	5.04	+1.43	0.07	-3.48	6.32	+3.10	6.45	+3.32	3.48	+0.28	60.84	+16.54
Marble Hill	1.95	-1.58	3.82	+0.54	3.10	-1.08	7.46	+3.02	4.05	-0.18	20.70	+16.53	3.15	-1.53	4.10	+0.60	0.00	-3.63	7.85	+5.20	7.04	+3.87	4.18	+0.85	67.40	+22.61
Morehouse	2.25	-1.98	3.37	+0.11	2.22	-2.28	7.51	+3.25	2.37	-1.79	17.16	+13.28	0.34	-4.43	5.76	+1.95	0.16	-2.70	7.13	+4.53	4.67	+1.02	5.04	+1.03	57.98	+11.99
New Madrid	2.56	-2.80	3.39	-0.46	3.01	-2.24	7.25	+2.90	3.41	-1.18	15.72	+11.51	1.73	-2.18	5.93	+2.05	0.14	-3.17	7.14	+3.89	4.28	+0.43	4.63	+0.27	59.19	+9.02
Poplar Bluff	1.93	-2.04	3.38	+0.42	2.07	-2.45	7.22	+2.75	3.29	-1.74	14.93	+9.91	1.97	-1.58	6.58	+2.31	0.67	-2.91	5.70	+2.50	6.80	+3.54	3.00	-1.18	57.54	+9.53
Sikeston	2.19	-2.04	2.41	-0.85	.....	.....	6.71	+2.45	.....	.....	16.88	+13.00	2.16	-2.61	4.77	+0.96	0.14	-2.72	6.04	+3.44	.....	.....	3.28	-0.73	.....	.....
Ozark Plateau																										
Arcadia	0.86	-2.36	1.48	-1.68	2.00	-2.07	6.22	+1.60	3.10	-1.68	14.04	+9.46	3.82	-0.42	5.72	+2.00	0.25	-3.39	3.34	+0.27	4.45	+0.83	2.44	-0.54	47.72	+2.02
Aurora	0.60	-1.80	1.58	-1.24	2.66	-1.02	6.68	+2.33	5.25	-0.21	18.07	+13.09	2.81	-2.55	8.52	+4.25	0.84	-2.89	3.08	-0.19	3.22	+0.40	2.27	-0.37	55.58	+9.83
Birchtree (near)	1.90	-1.16	2.54	+0.05	1.93	-2.32	7.30	+2.58	1.94	-2.37	13.56	+9.03	1.56	-2.43	7.41	+3.02	1.35	-2.24	3.93	+1.35	4.85	+1.96	2.63	+0.06	50.90	+7.53
Bolivar	0.67	-1.22	2.61	+0.32	3.56	+0.52	5.69	+1.70	.....	.....	14.45	+9.43	2.86	-0.89	11.34	+7.66	0.46	-3.64	2.86	-0.45	.....	.....	.....	.....	.....	.....
Caplinger Mills	0.27	.....	2.47	.....	2.67	.....	4.91	.....	1.86	.....	12.62	.....	2.48	.....	8.70	.....	1.10	.....	2.66	.....	1.87	.....	3.07	.....	44.68	.....
Dean	1.63	-0.61	1.21	-0.62	2.79	-0.56	9.14																			

Monthly and Annual Mean Temperatures for the Year 1928, with Departures

Stations	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure
Northeast Plain.																										
Brunswick	29.4	+ 2.6	34.2	+ 5.1	44.8	+ 3.0	49.7	- 4.4	65.6	+ 1.3	67.7	- 5.5	78.2	+ 2.5	77.0	+ 3.2	64.4	- 2.3	59.9	+ 4.7	42.9	+ 1.4	34.0	+ 3.4	54.0	+ 1.2
Clifton Hill	30.2	+ 1.5	34.9	+ 5.7	43.9	+ 1.7	49.7	- 3.8	64.8	+ 0.6	66.0	- 7.0	75.9	+ 0.5	74.8	+ 1.4	62.3	- 6.6	59.3	+ 2.1	43.4	+ 0.4	34.2	+ 8.1	53.3	+ 0.4
Columbia	32.8	+ 3.6	36.4	+ 4.7	46.0	+ 3.4	51.2	- 3.7	65.7	+ 1.4	66.6	- 6.2	77.2	+ 0.3	75.8	+ 0.2	63.8	- 4.4	60.8	+ 4.2	44.5	+ 1.2	36.2	+ 3.0	54.8	+ 0.6
Downing	30.2	.....	34.0 ^a	.....	44.0	.....	48.6	.....	61.8	.....	66.8	.....	75.6	.....	73.6	.....	62.2 ^a	.....	57.2 ^a	.....	42.4	.....	32.4	.....	52.7	.....
Fayette	30.6	+ 3.4	34.6	+ 4.4	43.5	+ 1.4	49.6	- 4.7	66.6	+ 0.7	66.6	- 6.7	76.6	+ 0.8	75.2	- 0.9	62.7	- 5.6	59.1	+ 2.4	42.4	+ 0.1	33.9	+ 2.7	53.3	+ 0.3
Fulton	30.3	+ 0.6	35.6	+ 2.9	44.8	+ 0.4	50.8	- 3.5	65.1	+ 0.1	67.3	- 6.3	77.8	+ 1.0	76.0	+ 0.5	64.4	- 4.6	61.3	+ 3.6	44.4	+ 0.1	35.8	+ 2.1	54.5	+ 0.4
Hannibal	30.9	+ 3.8	35.8	+ 6.1	44.0	+ 3.0	50.0	- 3.4	64.9	+ 1.3	67.0	- 5.6	77.8	+ 1.0	76.6	+ 1.6	63.0	- 4.7	60.2	+ 4.2	44.2	+ 2.1	34.8	+ 8.3	54.1	+ 1.1
Jefferson City	32.4	+ 2.6	36.7	+ 5.8	46.8	+ 3.6	52.0	- 4.1	66.8	+ 1.9	67.8	- 5.2	77.9	+ 0.2	77.0	+ 0.3	64.8 ^a	- 4.3	63.6	+ 3.9	45.4	+ 1.3	38.2	+ 5.4	55.8	+ 1.1
Kirkville	29.8	+ 4.9	33.8	+ 7.9	43.2 ^b	+ 3.7	48.8 ^a	- 2.9	63.6	+ 1.1	66.7	- 5.5	75.9	+ 0.2	75.0	+ 1.0	62.8	- 3.2	58.2	+ 3.5	42.4	+ 1.9	32.2	+ 2.6	52.7	+ 1.2
Louisiana	33.6	+ 5.7	37.1	+ 7.4	46.0	+ 2.7	.....	.....	.....	.....	.....	.....	74.2	- 2.2	73.6	- 1.4	61.0	- 3.9	60.0	+ 3.7	45.0	+ 0.8	35.4 ^a	+ 3.9	.....	.....
Macon	29.0	+ 0.5	33.7	+ 5.0	44.3	+ 1.7	49.3	- 3.8	63.5	+ 1.6	66.2	- 6.8	77.6	+ 0.2	75.6	+ 0.7	61.8	- 6.5	58.5	+ 1.7	41.9	+ 1.5	32.8	+ 2.4	53.0	+ 0.5
Mexico	30.4	+ 2.1	35.2	+ 5.9	45.3	+ 3.3	50.2	- 3.6	65.4	+ 1.1	67.1	- 6.7	77.9	+ 0.6	76.4	+ 0.3	63.8	- 4.8	59.2	+ 2.8	43.2	+ 0.2	34.6	+ 2.8	54.1	+ 0.4
St. Charles	33.5	+ 2.4	36.7	+ 4.2	46.0	+ 1.6	52.3	- 3.1	66.0	+ 3.0	68.4	- 5.8	78.2	+ 1.0	77.2	+ 0.5	66.2	- 1.7	62.2	+ 4.1	45.4	+ 0.1	33.1	+ 3.2	55.8	+ 0.7
St. Louis(1)	34.7	+ 3.5	37.6	+ 2.6	46.0	+ 1.9	52.4	- 3.7	66.6	+ 0.4	68.6	- 6.4	79.9	+ 1.1	77.6	+ 0.1	67.4	- 3.1	62.2	+ 3.4	46.0	+ 0.6	38.6	+ 3.7	56.5	+ 0.3
St. Louis(2)	33.8	+ 3.6	36.4	+ 4.2	45.1	+ 1.5	51.5	- 3.7	66.4	+ 0.3	68.2	- 6.7	79.3	+ 0.8	77.4	+ 0.2	66.8	- 3.4	61.7	+ 2.8	45.2	+ 1.3	37.8	+ 3.5	55.8	+ 0.0
Steffenville	30.2	+ 2.4	35.0	+ 6.6	44.6	+ 2.2	49.4	- 3.6	64.1	+ 0.6	66.9	- 6.3	77.1	+ 0.9	76.6	+ 1.6	63.8	- 5.3	59.2	+ 1.5	43.2	+ 0.6	33.6	+ 3.0	53.6	+ 0.1
Unionville	29.2	+ 5.7	33.3	+ 7.9	43.2	+ 4.6	48.0	- 2.7	63.9	+ 1.0	66.7	- 5.1	75.3	+ 1.3	74.2	+ 0.8	62.1	- 5.1	58.0	+ 2.6	41.8	+ 1.6	32.0	+ 4.6	52.2	+ 0.9
Warrenton	33.7	+ 4.7	37.0	+ 7.1	46.9	+ 4.7	52.2	- 2.3	66.2	+ 1.2	67.8	- 5.8	78.4	+ 0.6	77.0	+ 0.6	65.8	- 3.0	61.6	+ 6.0	45.6	+ 2.7	38.0	+ 6.0	55.8	+ 1.9
Keokuk, Ia.	29.5	+ 4.6	34.2	+ 5.9	42.6	+ 3.7	48.7	- 3.4	64.8	+ 1.0	66.8	- 5.7	77.4	+ 0.7	75.9	+ 0.9	63.1	- 4.4	58.5	+ 3.1	42.9	+ 1.8	33.0	+ 3.4	53.1	+ 1.0
Section Means	31.3	+ 3.2	35.4	+ 5.5	44.8	+ 2.7	50.2	- 3.5	65.3	+ 1.1	67.1	- 6.2	77.3	+ 0.0	75.9	+ 0.2	64.0	- 4.3	60.0	+ 3.5	43.8	+ 0.7	35.0	+ 3.4	54.2	+ 0.5
Southeast Lowlands.																										
Campbell	36.4	.....	41.2	.....	47.6	.....	54.8	.....	66.4	.....	71.2	.....	78.7	.....	78.8	.....	66.5	.....	62.8	.....	47.4	.....	39.6	.....	57.6	.....
Caruthersville	.....	.....	41.8	+ 2.9	50.0	- 1.2	56.7	- 3.5	69.3	+ 0.2	72.7	- 5.1	79.0	- 1.6	.....	.....	64.9	- 5.0	62.3	+ 3.2	51.0	+ 1.1	43.6	+ 3.6	.....	.....
Doniphan	36.6	+ 0.4	40.2	+ 2.1	47.6	- 1.8	54.0	- 4.0	67.0	+ 0.1	70.0	- 4.8	78.9	+ 0.7	78.6	+ 1.2	65.8	- 5.0	62.3	+ 3.9	46.1	+ 1.5	38.8	+ 1.4	57.2	+ 0.7
Jackson	34.8	+ 0.8	38.2	+ 2.7	46.4	- 0.8	52.4	- 4.5	64.5	+ 1.3	68.8	- 5.3	77.7	+ 0.4	76.0	+ 0.2	64.6	- 5.3	60.4	+ 2.4	45.9	+ 0.3	37.5	+ 0.9	55.6	+ 0.9
Marble Hill	35.2	+ 0.4	39.1	+ 3.8	49.0	+ 1.6	54.6	- 2.1	66.0	+ 0.3	69.5	- 4.4	78.4	+ 1.1	78.6	+ 1.6	66.2	- 4.2	62.2	+ 4.2	46.4	+ 2.0	37.8	+ 1.6	56.9	+ 0.4
Poplar Bluff	36.4	- 0.2	41.3	+ 5.0	49.4	+ 0.6	54.5	- 4.7	66.9	+ 1.1	70.6	- 4.8	79.0	+ 0.3	78.9	+ 0.9	67.2	- 4.1	62.8	+ 2.5	48.7	+ 1.3	33.5	+ 1.7	57.8	+ 0.2
Sikeston	34.6	+ 3.0	38.1	+ 1.5	.....	.....	55.0 ^a	- 2.9	.....	.....	71.2	- 4.3	79.0	+ 0.9	78.8 ^a	+ 1.2	.....	.....	63.4	+ 4.6	48.0 ^a	+ 0.6	40.8	+ 3.3	.....	.....
Cairo, Ill.	36.6	+ 1.7	40.0	+ 1.5	47.6	+ 0.4	54.0	- 4.1	66.9	+ 1.5	70.8	- 5.5	80.2	+ 0.6	78.7	+ 0.9	68.2	- 3.3	63.4	+ 3.0	47.7	+ 0.4	40.6	+ 2.8	57.9	+ 0.3
Section means	35.8	+ 0.0	38.9	+ 2.8	48.2	- 0.2	54.5	- 3.7	66.7	+ 0.7	70.6	- 4.7	79.0	+ 0.2	78.3	+ 0.9	66.4	- 4.4	62.8	+ 3.4	47.6	+ 0.4	39.6	+ 2.2	57.6	+ 0.9
Ozark Plateau																										
Arcadia	32.9	+ 0.8	35.7	+ 2.2	44.2	- 0.6	49.8	- 5.5	63.0	- 1.6	64.9	- 7.1	74.6	+ 1.3	73.7	- 0.8	62.2	- 5.4	59.1	+ 3.0	43.0	- 1.0	36.1	+ 1.8	53.3	+ 1.3
Aurora	38.4	+ 4.9	39.7	+ 6.1	48.4	+ 2.8	53.2	- 2.5	66.6	+ 0.7	68.0	- 5.8	76.6	+ 1.2	76.6	+ 0.2	66.4	- 4.3	62.2	+ 3.7	46.3	+ 0.5	39.6	+ 4.5	56.8	+ 0.8
Birchtree(near)	36.2	+ 1.8	39.1	+ 4.2	46.9	- 0.5	52.6	- 4.2	65.6	+ 0.4	67.6	- 5.1	76.8	+ 0.4	76.4	+ 0.5	65.3	- 4.2	61.6	+ 3.4	46.0	- 0.5	38.6	+ 2.8	56.1	+ 0.1
Bolivar	36.6	+ 2.7	40.0	+ 5.6	49.4	+ 3.3	53.6	- 2.5	.....	.....	68.4	- 4.4	77.0 ^b	+ 0.1	.....	.....	63.2	- 6.4	.....	.....	.....	.....	.....	.....	.....	.....
Dean	38.7	+ 2.5	41.6 ^a	+ 6.8	50.2	+ 1.3	55.8	- 1.5	67.0	+ 1.2	69.5	- 5.3	77.1 ^b	+ 0.5	77.7	+ 0.3	70.6 ^c	- 0.1	69.3	+ 9.4	52.0 ^b	+ 2.3	38.7	+ 1.3	59.0	+ 1.6
Eldon	33.6 ^b	+ 2.2	36.6 ^b	+ 4.7	46.2	+ 2.7	50.6	- 4.8	66.1 ^a	+ 1.6	67.3 ^a	- 5.9	77.2 ^a	+ 0.2	76.8 ^a	+ 0.4	64.4	- 4.9	61.3	+ 3.6	41.8 ^a	+ 3.4	36.6	+ 1.3	54.9	+ 0.1
Farmington	34.8	+ 2.0	37.0	+ 1.4	45.8	+ 1.1	51.5	- 5.4	64.4	+ 0.6	66.9	- 5.7	76.5	+ 1.2	75.4	+ 0.6	65.8	- 3.6	61.4	+ 5.0	44.6	+ 0.3	38.1	+ 1.1	55.2	+ 0.3
Goodland	34.8	+ 2.2	38.4	+ 5.5	45.2	+ 0.3	51.4 ^a	- 0.7	66.0	+ 1.5	68.0	- 6.1	75.0	+ 0.6	75.0	+ 0.5	62.2	- 5.1	59.6	+ 3.8	44.8	+ 0.2	37.3	+ 2.9	54.5	+ 0.0
Greenville	.....	.....	38.6	.....	45.2	.....	51.6	.....	63.6	.....	67.3 ^a	.....	75.8	.....	.....	.....	60.8 ^a	.....	60.8 ^a	.....	46.1 ^a	.....	36.0 ^a	.....	.....	.....
Koshkonong	38.8 ^a	+ 2.3	41.2	+ 3.7	49.2 ^b	+ 0.4	53.5	- 4.3	67.8 ^b	+ 1.0	69.8 ^b	- 5.5	78.8	+ 0.3	78.4 ^a	+ 0.7	67.2 ^a	- 3.7	62.4 ^a	+ 2.4	46.8	- 2.6	40.4	+ 2.8	57.7	+ 0.3
Lebanon	33.3	+ 0.3	35.6	+ 1.7	44.2	- 1.2	48.4	- 7.3	63.2	- 2.4	65.6	- 7.5	75.9	+ 1.0	75.4	+ 0.9	64.4	- 5.1	61.4	+ 3.4	42.0	+ 0.4	35.8	+ 0.8	53.8	+ 1.9
Lockwood	36.8	+ 3.5	39.4	+ 3.9	48.3	+ 0.4	52.0	- 4.0	66.6	+ 2.0	68.7	- 5.3	77.4	+ 0.2	76.6	+ 0.8	67.6	- 3.7	62.7	+ 4.1	46.4	- 1.3	39.7	+ 0.5	56.2	+ 0.2
Mountain Grove(near)	35.3	+ 2.1	37.6	+ 3.8	46.6	+ 0.6	51.3	- 2.9	65.6	+ 1.7	66.6	- 5.0	76.8	+ 0.8	76.4 ^a	+ 1.3	65.4	- 3.0	61.3	+ 3.7	43.4	- 3.2	36.6	+ 2.3	55.2	+ 0.2
Neosho	36.2	+ 1.1	40.1	+ 3.5	48.6	+ 0.4	57.8	- 2.6	65.6	+ 0.6	68.6	- 5.3	75.8	+ 1.8	76.9	+ 0.0	67.2	- 3.1	63.4	+ 4.2	46.8	-				

(Continued from Page 49.)

Vegetation generally was about 10 days behind the average.

JUNE.—Decidedly a cool and wet month in all Missouri. With a monthly mean temperature of 67.7° it was the second coolest June in forty years; and with 11.17 inches of water it was not only the wettest June but the wettest of all other months in sixty years. Over much of the State the monthly totals were from two to four times the normal. The Missouri River was bankful and running over in places, and nearly all tributaries were over banks doing great damage to crops and other property. Except some local storms of the tornado type in Holt, Andrew, Gentry, and Daviess on the 18th, the remainder of the State was free from storm damage. There was too much water for best results in wheat yields. Corn on the other hand, being clean and well cultivated, was in fine condition, the soil being rather dried out by the lack of moisture of preceding months, took care of all surplus June rains.

JULY.—Some few hot, sultry days, but mainly a pleasant summer month, and on the whole favorable to the farmer. Drier than normal, but the large surplus water of June apparently kept well rooted plants going in good condition. The corn condition was the most satisfactory for July in several years. The rounding out of grain harvesting and threshing, was favored by July's weather.

AUGUST.—This month's weather was also favorable for the farmers and other outdoor work most of the time. All crops made satisfactory progress. The temperature and sunshine approximated the usual. For the State, as a whole, the month was about 40 per cent wetter than normal, but the rains were well timed and geographically well distributed. Much plowing for fall seeding was done.

SEPTEMBER.—Generally a pleasant month from the side of personal comfort, for farm interests and other outdoor occupations. Save a summer-like spell the second week, the month was mainly cool, with some outstanding cool days after the 20th. Frost was general on the 24th and locally of a killing nature to tender vegetation over the eastern part of the Ozarks and in scattered localities in northern sections. There was less rain than usual. Most crops were well advanced toward maturity. Wheat sowing made good progress, except locally in southern sections where the ground had become hard from insufficient rain.

OCTOBER.—Warmer than normal but mainly a fine outdoor month. Rainfall larger than normal, except in most of the Ozark region, where it was locally too dry for pastures and late plowing. In parts of the southeast there was too much water for best results. There were no frosts until the 20th, and then light which favored the quick maturing of some late crops. The first killing frost occurred the morning of the 31st, and even this was not of a killing nature in some localities, there being 16 stations with no freezing temperature.

NOVEMBER.—An outstanding wet month, and the wettest November of record. Other weather elements were near the normal. Unfavorable for the usual farm work, and most other outdoor occupations. Another unusual feature of this month, and a record breaker, was the extensive river floods. The Platte, Grand, Charitan, Salt, and Fabius Rivers of the northern part of the State; the Osage and Blackwater Rivers of the southern part, and the Missouri River from Lexington down to its mouth were out of banks, resulting in heavy damage to corn, wheat, cattle, and miscellaneous farm improvements. According to press news, the State highways were excessively damaged, but the State Highway Department put the damage at about \$60,000.

DECEMBER.—This was an unusually mild and pleasant month for winter. There were about three general precipitation

periods of from one to three days each, occurring on widely separated dates which permitted outdoor occupations with minimum hindrance. The requirement for home fuel was below the average. And automobile traffic was nearly continuous and heavy.

TORNADOES IN MISSOURI THE LAST TEN YEARS, 1918-1927.

About four tornadoes a year have been Missouri's average during the last ten years, according to accurate statistics compiled by the U. S. Weather Bureau office at Columbia, the section center for Missouri State.

The total length of tornado paths during the last ten years average 86 miles. Persons killed, 22; persons injured, 112; and property losses approximated \$2,689,700. All lists in this 10-year period are larger than ordinary because of one tornado—the one that struck the City of St. Louis on September 29, 1927. Deduct the St. Louis casualties from the table of statistics and we have an average of 15 persons killed; 62 injured; and property loss of \$488,400. The years 1925 and 1927 were outstanding in injury, death and destruction of property. The year 1926 stands alone as free from tornado disturbances.

THE MONTHLY DISTRIBUTION.

The earliest date of tornado occurrence during the last 10-year period was February 27, 1918, in Bates County; and the latest was November 18, 1921, in Butler County. The 10-year total, 39 tornadoes, was distributed among the months as follows: February, 1; March, 12; April, 7; May, 5; June, 4; July, 3; September, 5; and November, 2. With favorable weather tornadoes may develop in any month of the 12, but the season most favorable for them in Missouri is from the last ten days of March to the first ten days of June. During the last 10-year period March had the largest number of any other month; but during the previous 40 years, strange to say, March had but 4 or possibly 5. April and May lead all other months, with the month of May well at the top of the list. As a rule, after the middle of June tornado hazard becomes less and less, except occasionally there is a slight increase in September.

THE AFTERNOON THE FAVORITE TIME OF DAY.

The afternoon is the most favorable time of the day in Missouri for tornadoes. During the last 10-year period only one occurred before noon (11.30 a. m., April 19, 1927, in the eastern part of Boone County.) Of the total 39 tornadoes, 21, or 54 per cent, occurred between the hours of 4 p. m. and 6.30 p. m. (This also holds good for the 50-year period.) The time of distribution was as follows: One before noon; five between 1 and 2 p. m.; one between 2 and 3 p. m.; five between 3 and 4 p. m.; eight between 4 and 5 p. m.; six between 5 and 6 p. m.; seven between 6 and 7 p. m.; one each for the hour of 7, 8, and 9 p. m.; three after 10 p. m.; and two after 11 p. m.

According to these statistics Missouri evening and night pleasures are rarely disturbed by visiting tornadoes.

NOT MORE FREQUENT NOW THAN IN PAST DECADES.

(Chances Of A Person Being Killed Or Injured By A Tornado In Missouri Are Small.)

According to Weather Bureau statistics, tornadoes probably are not more frequent now than during several decades past. About 4 has been Missouri's quota for the last ten years; 4 for the ten years from 1887 to 1896; and the same average, 4, is the answer of the 50-year period beginning with the year 1877. The damage done in our more recent times is of course greater than at earlier times. That is because the country is more thickly settled now. The general direction of movement is the same, that is, tornadoes travel from some point in the west or southwest toward east or northeast.

Notwithstanding the fact that these storms may be more damaging now than formerly because of our more closely settled

communities, in an average year the chance of a person in Missouri being killed by a tornado is about 1 in 200,000; and about 1 in 36,360 of being injured. If there is no other causes for shortening our life-span except tornadoes, a person then would have a bet of 520 to 1 that the three-score and-ten allotment would be lived out. We might better express this ratio comparatively by saying that if every person in Missouri was due to live 70 years without tornadoes, life would be shorter by eight and one-half days because of tornado hazard.

The following table gives the more important statistics for the last ten years, 1918-1927. Only tornadoes considered.

Year	Number of Tornadoes.	Total path-length in miles.	Persons Killed	Persons Injured	Estimated Damage.
1918..	8	37	14	25	\$305,000
1919..	3	53	0	0	\$52,000
1920..	5	78	13	18	\$253,000
1921..	1	60	4	0	\$100,000
1922..	2	89	3	12	\$105,000
1923..	3	56	0	11	\$103,000
1924..	5	124	3	4	\$306,000
1925..	3	108	11	156	\$581,000
1926..	0	0	0	0	0
1927..	9	259	177	893	\$24,845,000
Total ..	39	864	225	1119	\$26,897,000
Average	4	86	22	112	\$2,689,700

Monthly Data of the State for 1928

Month	Temperature				Precipitation				
	Mean	Departure from Normal	Maximum	Minimum	Mean	Departure from Normal	Greatest	Least	No. Days with .01 or more
January	33.3	+ 2.9	77	-18	0.87	-1.16	2.26	0.00	3
February	37.0	+ 5.2	71	- 2	2.28	+0.13	4.10	1.03	7
March	46.3	+ 2.5	89	10	1.54	-1.46	3.56	0.11	5
April	51.6	- 3.5	88	16	4.79	+1.06	9.43	1.01	8
May	65.8	+ 1.2	95	29	2.84	-1.86	6.37	0.78	8
June	67.4	- 5.8	91	40	11.17	+6.50	22.00	5.08	15
July	77.2	- 0.2	102	48	2.97	-1.08	7.02	0.34	7
August	76.4	+ 0.4	99	45	5.35	+1.67	11.24	0.96	9
September	65.0	- 4.0	95	28	2.61	-1.12	9.04	0.00	5
October	60.9	+ 3.5	94	22	3.83	+1.08	8.97	0.79	8
November	44.6	+ 0.1	79	9	5.10	+2.75	10.88	0.74	10
December	36.2	+ 2.3	81	0	2.24	+0.21	5.04	0.23	5
Year	55.2	+ 0.4	102	-18	45.59	+5.26	22.00	0.00	9

Comparative Annual Data for the State

Year	Temperature			Precipitation	Year	Temperature			Precipitation
	Mean	Maximum	Minimum			Mean	Maximum	Minimum	
1888.....	52.9	111	-32	41.22	1910.....	55.0	109	-24	35.86
1889.....	54.3	107	- 9	37.91	1911.....	56.9	113	-19	38.94
1890.....	54.7	106	-19	35.71	1912.....	53.6	105	-36	38.68
1891.....	53.9	108	-11	38.04	1913.....	56.5	110	-12	37.47
1892.....	53.4	101	-11	42.76	1914.....	56.1	109	-18	34.72
1893.....	52.7	107	-20	38.19	1915.....	54.8	102	-24	49.62
1894.....	55.1	111	-35	33.18	1916.....	55.2	109	-29	40.33
1895.....	52.9	106	-26	39.80	1917.....	52.3	107	-23	31.94
1896.....	55.5	108	-10	44.63	1918.....	55.5	111	-25	37.16
1897.....	55.0	108	-16	38.82	1919.....	55.2	106	-23	40.05
1898.....	54.4	104	-20	53.67	1920.....	54.3	105	-10	37.17
1899.....	54.0	108	-32	37.32	1921.....	58.2	109	- 8	43.77
1900.....	55.6	105	-16	38.34	1922.....	56.8	108	- 6	39.99
1901.....	55.5	116	-29	25.23	1923.....	55.3	108	-11	41.23
1902.....	54.1	103	-17	44.96	1924.....	52.9	106	-28	40.01
1903.....	53.6	102	-25	40.15	1925.....	55.5	110	-14	39.78
1904.....	53.2	100	-23	41.62	1926.....	54.5	108	-20	43.07
1905.....	53.6	103	-40	45.43	1927.....	55.5	102	-24	53.86
1906.....	55.1	101	-13	37.34	1928.....	55.2	102	-18	45.59
1907.....	55.6	109	-15	41.81					
1908.....	56.7	102	-10	42.56					
1909.....	55.7	110	-20	45.16	Average 41 yrs.	54.8	116	-40	40.33

KILLING FROSTS, 1928

Stations	Last in Spring	First in Autumn	Days in Growing Season	Stations	Last in Spring	First in Autumn	Days in Growing Season
<i>Northeast Plain</i>				<i>Ozark Plateau (continued)</i>			
Brunswick.....	April 28	Oct. 29	184	Greenville.....	May 8	Sept. 24	139
Clifton Hill.....	April 28	Oct. 23	178	Koshkonong.....	April 16	Oct. 31	198
Columbia.....	April 15	Nov. 4	203	Lebanon.....	April 29	Oct. 24	179
Downing.....	April 27	Sept. 25	152	Lockwood.....	April 16	Nov. 3	201
Fayette.....	April 28	Sept. 26	151	Mountain Grove..	April 28	Oct. 23	178
Fulton.....	April 28	Sept. 26	151	Neosho.....	April 28	Oct. 23	178
Hannibal.....	April 15	Sept. 26	164	Rolla.....	April 28	Oct. 23	178
Jefferson City.....	April 16	Oct. 31	198	Salem(near).....	May 8	Sept. 24	139
Kirkville.....	April 27	Oct. 29	185	Seligman.....	April 15	Oct. 23	191
Louisiana.....		Sept. 25		Seymour.....	April 28	Sept. 24	149
Macon.....	April 25	Oct. 20	178	Springfield.....	April 15	Nov. 3	202
Mexico.....	April 28	Oct. 29	184				
St. Charles.....	April 28	Oct. 31	186	<i>Southwest Plain</i>			
St. Louis (1).....	April 15	Nov. 20	219	Appleton City.....	April 16	Oct. 31	198
St. Louis (2).....	April 15	Nov. 20	219	Centerville.....	April 28	Oct. 31	186
Steffenville.....	April 28	Sept. 26	151	Clinton.....	April 19	Nov. 19	214
Unionville.....	April 27	Sept. 26	152	Harrisonville.....	April 19	Nov. 3	198
Warrenton.....	April 16	Oct. 29	196	Lamar.....	April 16	Nov. 3	201
Keokuk, Iowa.....	April 15	Oct. 29	197	Lamonte.....	April 20	Oct. 23	186
				Marshall.....	April 28	Oct. 20	175
<i>Southeast Lowlands</i>				Nevada.....	April 15	Nov. 3	202
Campbell.....	April 16	Nov. 5	203	Warsaw.....	April 28	Oct. 23	178
Caruthersville.....	Mar. 31	Nov. 20	234				
Doniphan.....	April 28	Oct. 23	178	<i>Northwest Plateau</i>			
Jackson.....	May 8	Sept. 24	139	Bethany.....	April 28	Sept. 26	151
Marble Hill.....	April 28	Sept. 24	149	Chillicothe.....	April 28	Sept. 26	151
Poplar Bluff.....	April 28	Oct. 31	186	Conception.....	April 25	Oct. 29	187
Sikeston.....	April 15	Oct. 31	199	Edgerton.....	April 28	Sept. 26	151
Cairo, Ill.....	April 16	Nov. 20	218	Grant City.....	April 27	Oct. 29	185
				Kansas City.....	April 15	Nov. 3	202
<i>Ozark Plateau</i>				Kidder.....	April 27	Oct. 28	184
Arcadia.....	May 8	Sept. 24	139	Lexington.....	April 15	Nov. 4	203
Aurora.....	April 28	Nov. 2	188	Maryville.....	April 20	Oct. 28	191
Birchtree.....	April 16	Oct. 23	190	Oregon.....	April 19	Nov. 2	197
Bolivar.....	April 15			St. Joseph.....	April 19	Oct. 31	195
Dean.....	April 28	Oct. 24	180	Tarkio.....	April 28	Oct. 29	184
Eldon.....	April 16	Oct. 31	198	Trenton.....	April 19	Sept. 26	160
Farmington.....	April 28	Sept. 24	149				
Goodland.....	May 8	Sept. 24	139				

TORNADOES IN MISSOURI.

Year	Month	Day	Hours beginning	Place, Counties crossed	Path miles	No. dead	No. inj.	Estimated damage
1919--	March	15	1.30 p. m.	Nodaway	11	0	0	\$23,000
1919--	March	15	4.15 p. m.	Vernon, St. Clair	50	0	1	\$28,000
1919--	May	17	11.00 p. m.	Harrison	2	0	0	\$1,000
1920--	March	11	1.00 p. m.	Vernon	1	3	0	\$75,000
1920--	March	11	4.00 p. m.	Taney	16	10	18	\$150,000
1920--	March	28	2.30 a. m.	Wright	3	0	0	\$3,000
1920--	April	19	5.30 p. m.	Franklin, St. Charles	38	0	0	\$15,000
1920--	July	7	10.30 p. m.	Marion	20	0	0	\$8,000
1921--	November	18	5.00 p. m.	Butler	60	4	0	\$100,000
1922--	March	5	4.45 p. m.	Jackson	40	0	0	\$5,000
1922--	April	10	3.00 p. m.	Lawrence, Greene	79	3	12	\$100,000
1923--	March	3	5.33 p. m.	Buchanan	30	0	9	\$50,000
1923--	March	5	9.00 p. m.	Marion	20	0	0	\$3,000
1923--	March	11	7.45 p. m.	Cape Girardeau	6	0	2	\$50,000
1924--	March	28	5.00 p. m.	Holt	4	0	0	\$4,000
1924--	March	28	10.00 p. m.	Scott, Cape Girardeau, New Madrid	50	3	1	\$200,000
1924--	July	24	5.25 p. m.	Buchanan	25	0	3	\$65,000
1924--	September	19	6.00 p. m.	Reynolds, Iron	30	0	0	\$30,000
1924--	November	11	4.00 p. m.	Webster, Shannon	15	0	0	\$7,000
1925--	March	18	1.00 p. m.	Reynolds, Iron, Madison, Bollinger, Perry	85	11	156	\$564,000
1925--	June	7	4.00 p. m.	Atchison	18	0	0	\$7,000
1925--	September	8	3.00 p. m.	Audrain	5	0	0	\$10,000
1927--	April	19	11.30 a. m.	Boone, Callaway, Audrain, -----	36	1	6	\$50,000
1927--	April	19	1.00 p. m.	Lincoln	20	0	12	\$20,000
1927--	May	8	8.00 p. m.	Camden—Audrain	110	11	51	\$308,000
1927--	May	9	3.00 p. m.	Ripley—Butler	28	87	300	\$2,120,000
1927--	May	18	3.00 p. m.	Randolph(2)	10	5	11	\$107,000
1927--	May	24	5.18 p. m.	Buchanan	5	0	2	\$200,000
1927--	July	28	4.45 p. m.	Jackson	10	0	0	\$25,000
1927--	September	29	1.00 p. m.	St. Louis City	10	72	500	\$22,000,000
1927--	September	29	4.00 p. m.	Butler	30	3	11	\$15,000
1928--	May	15	3.30 p. m.	Atchison	16	0	0	\$10,000
1928--	May	15	6.30 p. m.	Cass	3	0	0	\$8,000
1928--	June	18	4.00 p. m.	Holt	6	1	2	\$50,000
1928--	June	18	6.30 p. m.	Andrew, Gentry	26	0	0	\$100,000
1928--	June	18	8.00 p. m.	Daviess	6	0	0	\$50,000

NOTE: For tornado record for past years up to and including 1918, see Annual Summary, 1918.

WBO, St. Louis, 2-13-29-1025.

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